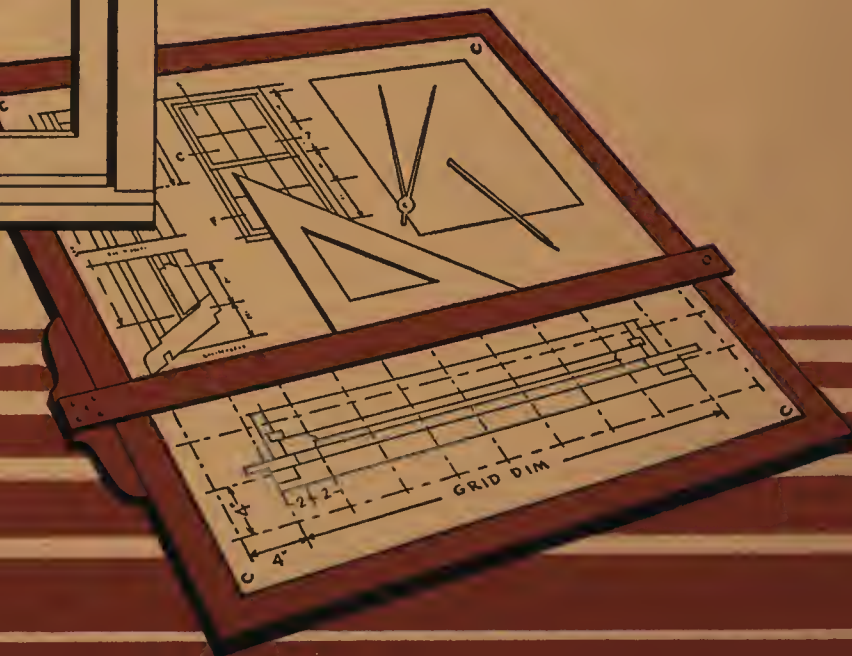


8/15/49

N. D. M. A.
MANUAL WSS-45



New MODULAR STANDARD
Ponderosa Pine
STOCK WINDOWS AND SASH

NATIONAL DOOR MANUFACTURERS ASSOCIATION • 332 SOUTH MICHIGAN AVENUE • CHICAGO 4, ILLINOIS

■ Why a MODULAR or National Standard?

Heretofore no national standard for wood windows and sash has ever been published or recognized by the stock woodwork and building industries.

Following the settlement of New England in Colonial days, certain window opening sizes came to be recognized as standard in that particular area. As our population moved westward other local or regional standards developed. As a result, we have had in the United States at least ten different local or regional window and sash standards.

This multiplicity of standards has resulted in much confusion among architects and builders. Producers and distributors found it necessary to manufacture and carry in stock as many different openings as markets or areas they proposed to serve. This did not lend itself to economical manufacturing and distribution.

To Avoid Confusion

In recent years, manufacturers of prefit window units have seen fit to build their units to a single standard opening irrespective of the markets in which they were to be used. The practice is now well established on the part of many individual companies.

Within the past two years the National Door Manufacturers Association made a study of all regional or local opening sizes to determine the extent to which they met the basic requirements of American Standards Association Project A62—"Coordination of Dimensions of Building Materials and Equipment." The basis for this coordination is a 4" module or increment. While one or two of the regional or local standards partially met the requirements for coordination, for the most part they failed to do so.

For Greater Economy

The National Door Manufacturers Association believes that important economies will result from the adoption of a national standard for wood windows and sash. It also recognizes the merit of the 4" increment or module that has been adopted by the American Standards Association as a basis for coordinating the dimensions of all building materials. Prompted by these considerations and after intensive study a new standard based on the 4" module or increment has been developed and is outlined in complete detail in this booklet.

The following advantages are inherent in this New Modular Standard for Ponderosa Pine stock windows and sash:

1. It sets up a national standard to replace the multiplicity of regional or local standards that heretofore existed.
2. It meets the basic requirements for coordination of ASA Project A62.
3. It will bring about economies in manufacturing.
4. It will bring about economies in distribution.
5. It will bring about economies in designing and construction.

We are confident this new Standard will prove of great advantage to all branches of the building industry.

MODULAR STANDARD

for Ponderosa Pine Stock Windows and Sash

Purpose

1. The purpose of this Standard is to establish standard specifications, layouts and sizes for Ponderosa Pine stock windows and sash to guide producers, distributors, architects, builders and the public; to provide the building industry with wood windows and sash built on a 4" module or increment; to avoid delays and misunderstandings; and to effect economies from the producer to the ultimate user through a wider utilization of Ponderosa Pine stock windows and sash.

SCOPE

2. This Standard provides minimum specifications for Ponderosa Pine stock windows and sash in two nominal thicknesses, $1\frac{1}{8}$ and $1\frac{3}{8}$ inches. It covers construction, grades and tolerances for these requirements.

There are standard layouts and essential construction details for the following:

$1\frac{3}{8}$ " Thickness

Check Rail Windows
Casement Sash
Cellar Sash
Porch Sash
Transoms
One-Light Sash
Hot Bed Sash
Barn or Utility Sash

$1\frac{1}{8}$ " Thickness

Plain Rail Windows
Storm Sash
Cellar Sash
Cupboard Sash
Barn or Utility Sash
Window Screens

QUALITY REQUIREMENTS

3. All standard stock Ponderosa Pine windows and sash shall meet the following quality requirements:

4. **Material**—All windows and sash shall be made of Ponderosa Pine which has been dried to a moisture content of 8% to 10% before fabrication and is practically free from defects. White sap, light brown water stain and light red kiln burn shall be allowed.

5. **Workmanship**—Windows and sash shall be well manufactured. Both sides of all assembled sash, and the top face of bottom sash check rail, shall be machine sanded.

6. **Construction**—At the option of the manufacturer, all windows and sash shall be constructed by what is known as "mortised and tenoned" construction or "slot mortised" construction. Tenons shall not be less than three-quarters of the rail width. Sash shall be well clamped together and all tenons carefully pinned with barbed steel pins set through tenons and countersunk. Stiles and rails shall have solid stickings. All joints shall be coped and well fitted.

GENERAL REQUIREMENTS

7. Stiles—The stiles of all double-hung check rail windows shall be plowed and bored for sash cord attachments.

8. Bottom Rails—Bottom rails of all check rail windows, storm sash, and window screens shall be beveled to a pitch of 14° (approximately 3" to 12"). All other windows and sash shall be furnished without bevel. At the option of the manufacturer, the bottom edge of the bottom sash on check rail windows may be plowed or shaped.

9. Check Rails—Check rails shall be rabbeted and notched for a 1/2" parting stop projection. See Pages 3 and 4.

10. Sticking—OGee sticking shall be standard on all Ponderosa Pine stock windows and sash. See Pages 4 and 5.

11. Prefitting—All windows, sash, storm sash and screens shall be made to prefit measurements as specified in layouts. A size tolerance of plus or minus 1/32" shall be allowed.

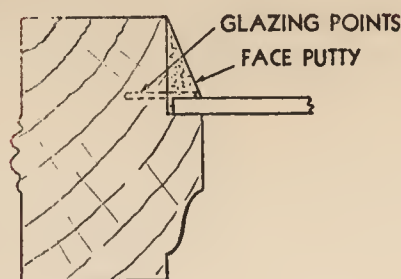
12. Sanded Thickness—The sanded or finished thickness of all nominal 1 3/8" windows and sash shall be 1 11/32". The sanded or finished thickness of all nominal 1 1/8" windows and sash shall be 1 3/32".

13. Thickness Tolerance—A tolerance of 1/32" less than the sanded or finished thickness shall be allowed.

14. Parts Tolerance—A tolerance of 1/32" plus or minus shall be allowed in the width of all machined parts.

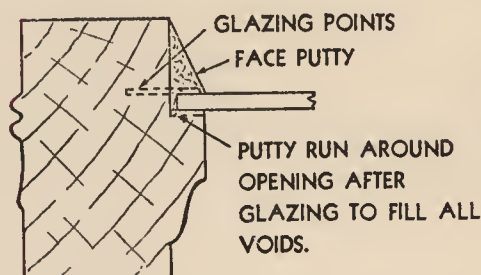
15. Glazing—Unless otherwise specified, all windows and sash shall be glazed with "Standard Glazing" single strength "B" glass and shall be face puttied. At the option of the manufacturer or as otherwise specified, they may be back

puttied or bedded in putty in accordance with the following specifications:



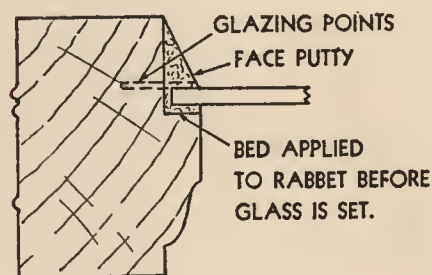
**Face
Puttying**

Glass is inserted in the glass rabbet and securely wedged where necessary to prevent shifting. Glazing points are also driven into the wood to keep the glass firmly seated. The rabbet is then filled with putty, the putty being beveled back against the sash and muntins with a putty knife.



**Back
Puttying**

After the sash has been face puttied, it is turned over and putty is run around the glass opening with a putty knife, thus forcing putty into any voids that may exist between the glass and the wood parts.



Bedding

A thin layer of putty or bedding compound is placed in the rabbet of the sash and the glass pressed onto this bed. Glazing points are then driven into the wood and the sash is face puttied. The sash is then turned over and the excess putty or glazing compound which emerged on the other side is cleaned away by running the putty knife around the perimeter of the glass opening.

DESIGNS and LAYOUTS

16. Measurements

The width of all wood parts shown in layouts are face measurements. Overall widths for stiles, rails and check rails are $\frac{3}{16}$ " greater than face measurements; for bars and muntins $\frac{3}{8}$ " greater.

GRADE-MARKING

17. Quality

All Ponderosa Pine stock wood windows and sash produced in conformity with the "Quality Requirements" of this Standard (Paragraphs 4, 5 and 6) shall be known as Grade "A" quality.

18. Grade Mark

In order that consumers and distributors may easily identify Ponderosa Pine stock windows and sash meeting the "Quality Requirements" of this Standard, the National Door Manufacturers Association has adopted the following grade-mark:



All Ponderosa Pine stock windows and sash guaranteed to conform to the "Quality Requirements" of this Standard may be stamped, labeled or branded with this grade-mark.

19. Certification

Consumers, distributors, architects, contractors and others desiring Ponderosa Pine windows and sash produced in conformity with the "Quality Requirements" of this Standard may request that such windows and sash be grade-marked or that they be accompanied by a certificate signed by the manufacturer certifying that they have been produced in conformity with the Standard.

NOTES

IMPORTANT: For greater economy, superior workmanship, and better service this Standard is urgently recommended. It is the result of many years of research and development.

Any deviations from this Standard necessarily involve special cutting, machining, etc. Windows and sash not conforming to this Standard are to be classified as "Special" and such special requirements must be clearly designated on orders, details or specifications.

SPECIFICATIONS

A: Short Form

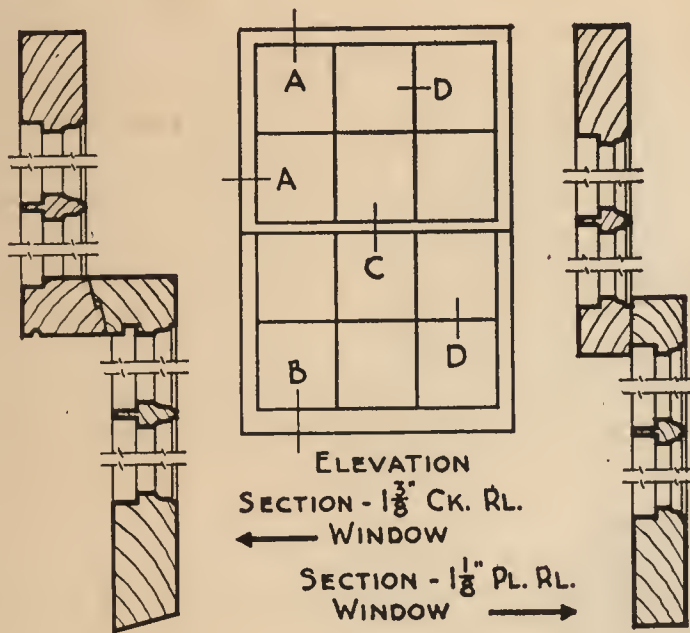
"All windows and sash shall be furnished in accordance with the NDMA Modular Standard for Ponderosa Pine Stock Windows and Sash as described in Manual WSS-45 issued by the National Door Manufacturers Association, Chicago, Illinois."

B: Specify

Specify opening size, design and thickness of window or sash and type of glass and glazing.

Full Size Details— $1\frac{3}{8}$ " CHECK RAIL and $1\frac{1}{8}$ " PLAIN RAIL WINDOWS

On this and the next page are full size details of standardized parts or members from which all windows, sash and screens are produced.



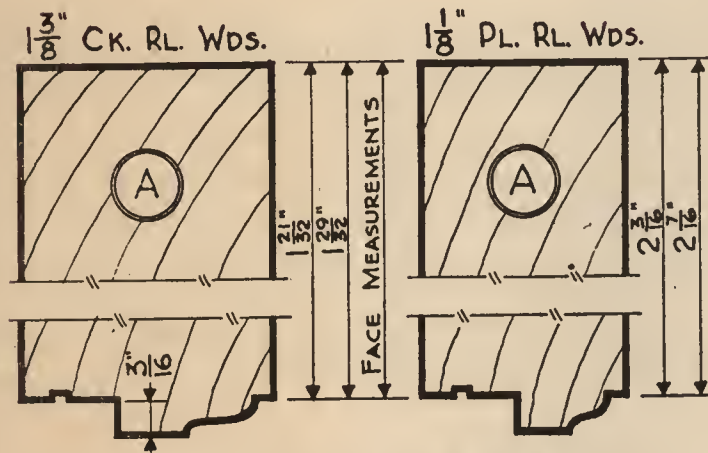
Standard Parts

Several widths of stiles, top rails, bottom rails and muntins are required. This is necessary in order to minimize the cutting of glass to fractional sizes in divided light windows and sash.

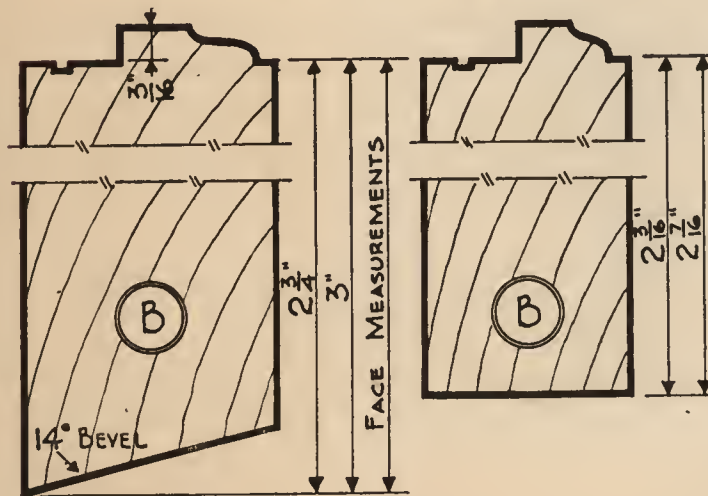
Specific layouts for all designs of windows and sash are given in the tables appearing on Pages 6 to 20. Deviations of any kind from these standard layouts necessarily result in windows or sash classified as "Special." See Page 3 for instructions when ordering or specifying non-standard products.

Sticking Profiles

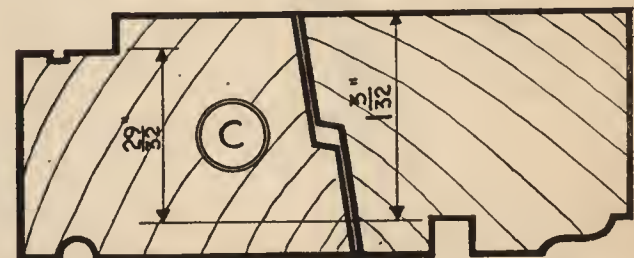
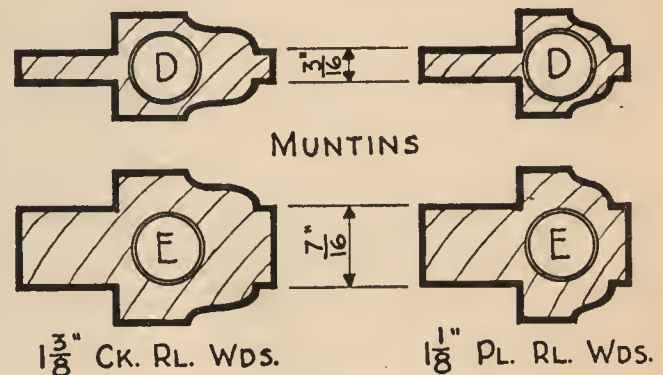
Slight variations in profile of stickings are permitted among manufacturers under this Standard. Likewise, the bottom rails of all $1\frac{3}{8}$ " check rail windows may, at the option of the manufacturer, be furnished plain beveled as shown or plowed or shaped in conformity with the manufacturer's regular shop practice.



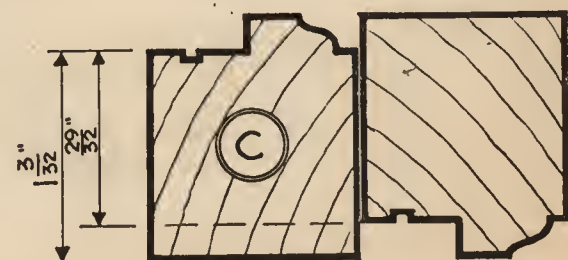
TOP RAILS & STILES
ALL GLASS RABBETS - $\frac{3}{16}$ " DEEP



BOTTOM RAILS

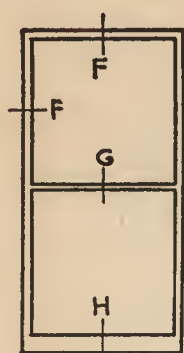


CHECK RAILS - ALL $1\frac{3}{8}$ " CK. RL. WDS.

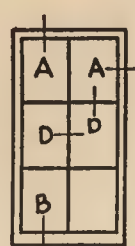


MEETING RAILS - ALL $1\frac{1}{8}$ " PL. RL. WDS.

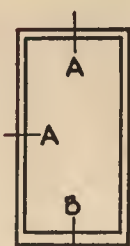
Full Size Details - STORM SASH, SINGLE SASH and SCREENS



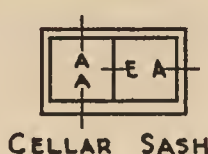
STORM SASH



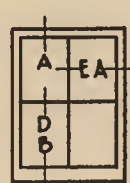
CASEMENT



1 LT. SASH



CELLAR SASH



BARN OR UTILITY SASH



WOOD SCREEN

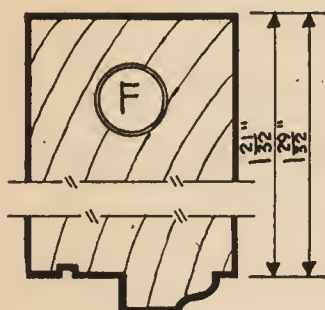
Single Sash Only a few of the various types of single sash covered by this standard are shown above. For a complete listing of designs and sizes see Pages 6 to 20.

Storm Sash and Screens

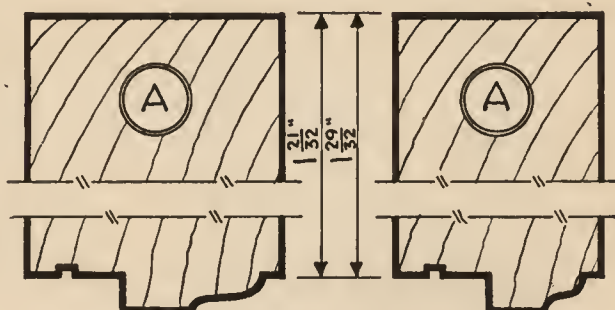
These items are made 1" greater in height than standard window opening heights. This extra height is needed to accommodate 14° pitch solid sill frames. When greater height is necessary, orders or specifications must so designate.

Screens

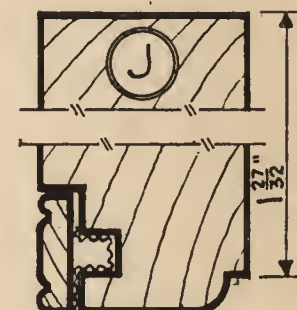
Details are shown for only 1 1/8" full length screens. Screens are also available 3/4" thick and may, at the option of the manufacturer, be supplied with either a flush or raised moulding.



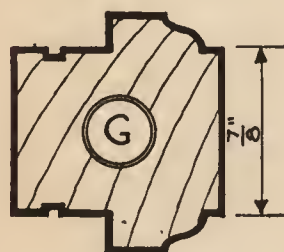
TOP RAILS & STILES



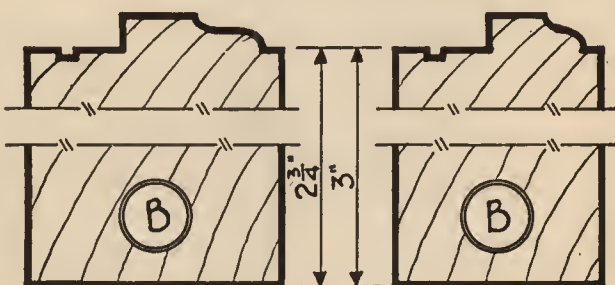
TOP RAILS & STILES



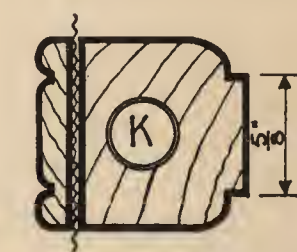
TOP RAILS & STILES



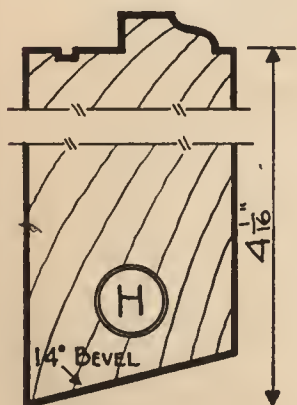
CENTER RAIL



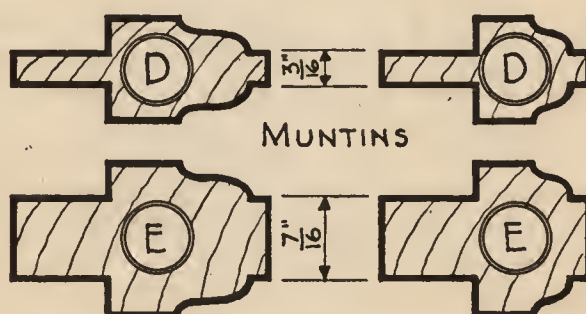
BOTTOM RAILS



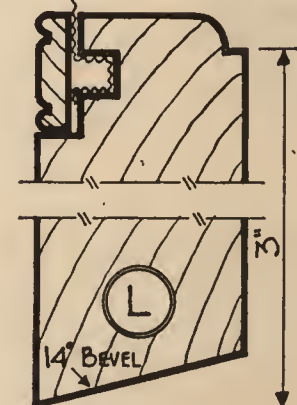
CENTER RAIL



BOTTOM RAIL
STORM SASH



MUNTINS



BOTTOM RAIL
SCREEN

Screens: At the option of the manufacturer, slight variations in profile or size of parts are permissible.

CHECK RAIL WINDOWS 13/8" – Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles.....1-29/32" Top Rail.....1-29/32" Bottom Rail.....3" Vertical Bar.....3/16" Check Rail.....1- 3/32"					St.....1-29/32" T.R.....1-21/32" B.R.....3" V.B.....3/16" Muntin...3/16" C.R.....1- 3/32"
						
	2 LT.	TOP 2 LT. W.	TOP 3 LT. W.	TOP 4 LT. W.	COTTAGE	TOP 4 LT.
1-4 x 2- 6	12 x 12	5-7/8 x 12				5-7/8 x 6
2-10	14	14				7
3- 2	16	16				8
3- 6	18	18				9
3-10	20	20				10
4- 2	22	22				11
4- 6	24	24				12
4-10	26	26				13
5- 2	28	28				14
5- 6	30	30				15
5-10	32	32				16
1-8 x 3- 2	16 x 16	7-7/8 x 16				7-7/8 x 8
3- 6	18	18				9
3-10	20	20				10
4- 2	22	22				11
4- 6	24	24				12
4-10	26	26				13
5- 2	28	28				14
5- 6	30	30				15
5-10	32	32				16
6- 2	34	34				17
6- 6	36	36				18
2-0 x 2- 6	20 x 12		6- 1/2 x 12			
2-10	14		14			
3- 2	16		16			
3- 6	18		18			
3-10	20		20			
4- 2	22		22			
4- 6	24		24			
4-10	26		26			
5- 2	28		28			
5- 6	30		30			
5-10	32		32			
6- 2	34		34			
6- 6	36		36			
6-10	38		38			
7- 2	40		40			
2-4 x 2- 6	24 x 12		7-27/32 x 12			
2-10	14		14			
3- 2	16		16			
3- 6	18		18			
3-10	20		20			
4- 2	22		22			
4- 6	24		24			
4-10	26		26			
5- 2	28		28			
5- 6	30		30			
5-10	32		32			
6- 2	34		34			
6- 6	36		36			
6-10	38		38			
7- 2	40		40			
2-8 x 2-10	28 x 14		9- 5/32 x 14			
3- 2	16		16			
3- 6	18		18			
3-10	20		20			
4- 2	22		22			
4- 6	24		24			
4-10	26		26			
5- 2	28		28			
5- 6	30		30			
5-10	32		32			
6- 2	34		34			
6- 6	36		36			
6- 6	36		36			

Windows are Made 1/8"
Narrower and 1/16"
Shorter Than Window
Opening Sizes Shown
Below

CHECK RAIL WINDOWS 13/8" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles.....1-29/32" Top Rail.....1-29/32" Bottom Rail.....3" Vertical Bar.....3/16" Check Rail.....1- 3/32"					St.....1-29/32" T.R.....1-21/32" B.R.....3" V.B.....3/16" Muntin...3/16" C.R.....1- 3/32"
Windows are Made 1/8" Narrower and 1/16" Shorter Than Window Opening Sizes Shown Below						
	2 LT.	TOP 2 LT. W.	TOP 3 LT. W.	TOP 4 LT. W.	COTTAGE	TOP 4 LT.
2-8 x 6-10	28 x 38		9-5/32 x 38			
7- 2	40		40			
3-0 x 2-10	32 x 14			7-13/16 x 14		
3- 2	16			16		
3- 6	18			18		
3-10	20			20		
4- 2	22			22		
4- 6	24			24		
4-10	26			26		
5- 2	28			28		
5- 6	30			30		
5-10	32			32		
6- 2	34			34		
6- 6	36			36		
6-10	38			38		
7- 2	40			40		
3-4 x 2-10	36 x 14			8-13/16 x 14		
3- 2	16			16		
3- 6	18			18		
3-10	20			20		
4- 2	22			22		
4- 6	24			24		
4-10	26			26	36 x 16/36	
5- 2	28			28	36 x 16/40	
5- 6	30			30		
5-10	32			32		
6- 2	34			34		
6- 6	36			36		
6-10	38			38		
7- 2	40			40		
3-8 x 3- 6	40 x 18			9-13/16 x 18		
3-10	20			20		
4- 2	22			22		
4- 6	24			24	40 x 14/34	
4-10	26			26	16/36	
5- 2	28			28	16/40	
5- 6	30			30	16/44	
5-10	32			32	16/48	
6- 2	34			34		
6- 6	36			36		
6-10	38			38		
7- 2	40			40		
4-0 x 3- 6	44 x 18			10-13/16 x 18		
3-10	20			20		
4- 2	22			22		
4- 6	24			24	44 x 14/34	
4-10	26			26	16/36	
5- 2	28			28	16/40	
5- 6	30			30	16/44	
5-10	32			32	20/44	
6- 2	34			34		
6- 6	36			36		
6-10	38			38		
7- 2	40			40		
4-4 x 4- 6	48 x 24			11-13/16 x 24	48 x 14/34	
4-10	26			26	16/36	
5- 2	28			28	16/40	
5- 6	30			30	18/42	
5-10	32			32		
6- 2	34			34	18/50	
6- 6	36			36		
6-10	38			38		
7- 2	40			40		

CHECK RAIL WINDOWS 1³/₈" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles.....1-29/32" Top Rail.....1-21/32" Bottom Rail.....3" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"		St.....1-21/32" T.R.....1-29/32" B.R.....3" V.B.....7/16" Muntin... C.R.....1- 3/32"		St.....1-21/32" T.R.....1-29/32" B.R.....3" V.B.....3/16" Muntin... C.R.....1- 3/32"		St.....1-21/32" T.R.....1-21/32" B.R.....2- 3/4" V.B.....7/16" Muntin... 3/16" C.R.....1- 3/32"		St.....1-21/32" T.R.....1-21/32" B.R.....2- 3/4" V.B.....3/16" Muntin... 3/16" C.R.....1- 3/32"	
										
Windows are Made 1/8" Narrower and 1/16" Shorter Than Window Opening Sizes Shown Below	TOP 6 LT.	TOP 8 LT.	4 LT.	6 LT.	8 LT.	12 LT.				
1-4 x 2- 6										
2-10										
3- 2										
3- 6										
3-10										
4- 2										
4- 6										
4-10										
5- 2										
5- 6										
5-10										
1-8 x 3- 2										
3- 6										
3-10					8 x 10					
4- 2										
4- 6					12					
4-10					13					
5- 2										
5- 6										
5-10										
6- 2										
2-0 x 2- 6	6- 1/2 x 6									
2-10	7									
3- 2	8		10 x 16			6-21/32 x 8				
3- 6	9		18			9				
3-10	10		20		10 x 10	10				
4- 2	11		22			11				
4- 6	12		24		12	12				
4-10	13		26		13	13				
5- 2	14		28		14	14				
5- 6	15		30		15	15				
5-10	16				16					
6- 2	17									
6- 6	18				18					
6-10	19									
7- 2	20									
2-4 x 2- 6	7-27/32 x 6			8 x 12						
2-10	7									
3- 2	8		12 x 16			8 x 8				
3- 6	9		18			9				
3-10	10		20			10				
4- 2	11		22			11				
4- 6	12		24		12 x 12	12				
4-10	13		26			13				
5- 2	14		28		14	14				
5- 6	15		30		15	15				
5-10	16		32		16					
6- 2	17		34							
6- 6	18		36		18					
6-10	19		38							
7- 2	20		40							
2-8 x 2-10	9- 5/32 x 7			9-11/32 x 14						
3- 2	8		14 x 16							
3- 6	9		18			9-11/32 x 10				
3-10	10		20							
4- 2	11		22							
4- 6	12		24			12				
4-10	13		26			13				
5- 2	14		28			14				
5- 6	15		30			15				
5-10	16		32		14 x 16	16				
6- 2	17		34							

CHECK RAIL WINDOWS 1³/₈" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles.....1-29/32" Top Rail.....1-21/32" Bottom Rail.....3" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"	St.....1-21/32" T.R.....1-29/32" B.R.....3" V.B.....7/16" Muntin.....3/16" C.R.....1- 3/32"	St.....1-21/32" T.R.....1-29/32" B.R.....3" B.V.....3/16" Muntin.....3/16" C.R.....1- 3/32"	St.....1-21/32" T.R.....1-21/32" B.R.....2- 3/4" V.B.....7/16" Muntin.....3/16" C.R.....1- 3/32"	St.....1-21/32" T.R.....1-21/32" B.R.....2- 3/4" V.B.....7/16" Muntin.....3/16" C.R.....1- 3/32"	
Windows are Made 1/8" Narrower and 1/16" Shorter Than Window Opening Sizes Shown Below						
	TOP 6 LT.	TOP 8 LT.	4 LT.	6 LT.	8 LT.	12 LT.
	2-8 x 6- 6	9-5/32 x 18	14 x 36		14 x 18	9-11/32 x 18
	6-10	19	38			
7- 2	20	40		20		
3-0 x 2-10		7-13/16 x 7		10-21/32 x 14		
3- 2		8	16 x 16	16		
3- 6		9	18	18		
3-10		10	20	20	10-21/32 x 10	
4- 2		11	22		12	
4- 6		12	24			
4-10		13	26		13	
5- 2		14	28		14	
5- 6		15	30		15	
5-10		16	32		16	
6- 2		17	34		17	
6- 6		18	36		18	
6-10		19	38			
7- 2		20	40		20	
3-4 x 2-10		8-13/16 x 7				
3- 2		8	18 x 16			
3- 6		9	18			
3-10		10	20			
4- 2		11	22		12 x 12	
4- 6		12	24			
4-10		13	26			
5- 2		14	28		14	
5- 6		15	30		15	
5-10		16	32		16	
6- 2		17	34		17	
6- 6		18	36		18	
6-10		19	38			
7- 2		20	40		20	
3-8 x 3- 6		9-13/16 x 9				
3-10		10				
4- 2		11			13-11/32 x 12	
4- 6		12				
4-10		13	20 x 26			
5- 2		14	28			
5- 6		15	30			
5-10		16	32			
6- 2		17				
6- 6		18				
6-10		19				
7- 2		20				
4-0 x 3- 6		10-13/16 x 9				
3-10		10				
4- 2		11				
4- 6		12				
4-10		13				
5- 2		14				
5- 6		15				
5-10		16				
6- 2		17				
6- 6		18				
6-10		19				
7- 2		20				
4-4 x 4- 6		11-13/16 x 12				
4-10		13				
5- 2		14				
5- 6		15				
5-10		16				
6- 2		17				
6- 6		18				
6-10		19				
7- 2		20				

CHECK RAIL WINDOWS 13/8" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles.....1-29/32" Top Rail.....1-21/32" Bottom Rail.....2- 3/4" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"		Stiles.....1-21/32" Top Rail.....1-29/32" Bottom Rail.....3" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"		Stiles.....1-29/32" Top Rail.....1-29/32" Bottom Rail.....3" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"	
						
Windows are Made 1/8" Narrower and 1/16" Shorter Than Window Opening Sizes Shown Below	16 LT.	4 LT. HIGH	15 LT.	18 LT.	20 LT.	24 LT.
1-4 x 2- 6		12 x 6				
2-10		7				
3- 2		8				
3- 6		9				
3-10		10				
4- 2		11				
4- 6		12				
4-10		13				
5- 2		14				
5- 6		15				
5-10		16				
1-8 x 3- 2		16 x 8				
3- 6		9				
3-10		10				
4- 2		11				
4- 6		12				
4-10		13				
5- 2		14				
5- 6		15				
5-10		16				
6- 2		17				
6- 6		18				
2-0 x 2- 6		20 x 6				
2-10		7				
3- 2		8				
3- 6		9				
3-10		10				
4- 2		11				
4- 6		12				
4-10		13				
5- 2		14				
5- 6		15				
5-10		16				
6- 2		17				
6- 6		18				
6-10		19				
2-4 x 2- 6		24 x 6				
2-10		7				
3- 2		8				
3- 6		9				
3-10		10				
4- 2		11				
4- 6		12				
4-10		13	8 x 10- 1/4			
5- 2		14				
5- 6		15	11-27/32	8 x 9-13/16		
5-10		16				
6- 2		17				
6- 6		18	14- 1/4	11-13/16		
6-10		19				
2-8 x 2-10		28 x 7				
3- 2		8				
3- 6		9				
3-10		10				
4- 2		11				
4- 6		12				
4-10		13				
5- 2		14				
5- 6		15	9-11/32 x 11-27/32			
5-10		16				
6- 2		17	13- 7/16			
6- 6		18	14- 1/4	9-11/32 x 11-13/16		

CHECK RAIL WINDOWS 13/8" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles.....1-29/32" Top Rail.....1-21/32" Bottom Rail.....2- 3/4" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"		Stiles.....1-21/32" Top Rail.....1-29/32" Bottom Rail.....3" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"		Stiles.....1-29/32" Top Rail.....1-29/32" Bottom Rail.....3" Vertical Bar.....3/16" Muntin.....3/16" Check Rail.....1- 3/32"	
						
Windows are Made 1/8" Narrower and 1/16" Shorter Than Window Opening Sizes Shown Below	16 LT.	4 LT. HIGH	15 LT.	18 LT.	20 LT.	24 LT.
2-8 x 6-10		28 x 19				
7- 2		20	9-11/32 x 15-27/32	9-11/32 x 13- 5/32		
3-0 x 2-10		32 x 7				
3- 2		8				
3- 6		9				
3-10	7-13/16 x 10	10				
4- 2		11				
4- 6	12	12				
4-10		13			7-13/16 x 10- 1/4	
5- 2	14	14	10-21/32 x 11-27/32		11-27/32	7-13/16 x 9-13/16
5- 6		15				
5-10		16				
6- 2		17				
6- 6		18	14- 1/4	10-21/32 x 11-13/16	14- 1/4	11-13/16
6-10		19	15- 1/32			
7- 2		20	15-27/32			
3-4 x 2-10		36 x 7				
3- 2		8				
3- 6		9				
3-10		10				
4- 2		11				
4- 6	8-13/16 x 12	12				
4-10		13				
5- 2		14				
5- 6		15	12 x 11-27/32		8-13/16 x 11-27/32	
5-10	16	16				
6- 2		17			13- 7/16	
6- 6		18	14- 1/4	12 x 11-13/16	14- 1/4	8-13/16 x 11-13/16
6-10		19				
7- 2		20	15-27/32		15-27/32	13- 5/32
3-8 x 3- 6		40 x 9				
3-10		10				
4- 2		11				
4- 6	9-13/16 x 12	12				
4-10		13				
5- 2		14				
5- 6		15			9-13/16 x 11-27/32	
5-10		16				
6- 2		17				
6- 6	18	18			14- 1/4	9-13/16 x 11-13/16
6-10		19			15- 1/32	
7- 2		20			15-27/32	
4-0 x 3- 6		44 x 9				
3-10		10				
4- 2		11				
4- 6		12				
4-10		13				
5- 2		14				
5- 6		15				
5-10		16				
6- 2		17				
6- 6		18				
6-10		19				
7- 2		20				
4-4 x 4- 6	11-13/16 x 12	48 x 12				
4-10		13				
5- 2	14	14				
5- 6		15			11-13/16 x 11-27/32	
5-10		16				
6- 2		17				
6- 6	18	18			14- 1/4	11-13/16 x 11-13/16
6-10						
7- 2					15-27/32	

PLAIN RAIL WINDOWS 1 1/8" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	St.....1-29/32" T.R.....2- 7/16" B.R.....2- 7/16" M.R.....1- 3/32"	St.....1-21/32" T.R.....2- 7/16" B.R.....2- 7/16" M.R.....1- 3/32" V.B..... 7/16"	St.....1-21/32" T.R.....2- 3/16" B.R.....2- 3/16" M.R.....1- 3/32" V.B..... 7/16" Muntin..... 3/16"	St.....1-21/32" T.R.....2- 3/16" B.R.....2- 3/16" M.R.....1- 3/32" V.B..... 3/16" Muntin..... 3/16"	St.....1-21/32" T.R.....2- 3/16" B.R.....2- 3/16" M.R.....1- 3/32" V.B..... 3/16" Muntin..... 3/16"
Windows are Made 1/8" Narrower and 1/16" Shorter Than Opening Sizes Shown Below					
2 LT.		4 LT.	8 LT.	12 LT.	18 LT.
1-8 x 3- 2 3-10 4- 6			8 x 10 12	5-11/32 x 8	
2-0 x 3- 6 3-10 4- 6	20 x 20 24	10 x 20	10 x 12	6-21/32 x 9	
4-10 5- 2 5-10	26		14 16		
6- 6 2-4 x 3-10 4- 6	24 x 20 24	12 x 20 24	18	8 x 10 12	
4-10 5- 2 5- 6	26 28	26 28 30	12 x 14	14	
5- 6 1/2 5-10 6- 6			16 18		8 x 10
6- 6 1/2 2-8 x 3-10 4- 6		14 x 20 24		9-11/32 x 12	12
4-10 5- 2 5- 6		26 28		13 14 15	
5-10 6- 6 6- 6 1/2			14 x 16 18		9-11/32 x 12
7- 2 7- 6 1/2 3-0 x 4- 6			20	10-21/32 x 12	14
5- 2 5- 6 5-10				14 15 16	
6- 6 6- 6 1/2 7- 6 1/2				18	10-21/32 x 12 14
3-4 x 4- 6 5- 2 5-10				12 x 12 14 16	
6- 6 6- 6 1/2				18	12 x 12

SCREENS AND STORM-SASH 1 1/8" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Storm-Sash St. 1-29/32" T.R. 1-29/32" B.R. 4- 1/16" Center Rail 7/8"	Screens St. & T.R. 1-27/32" B.R. 3" Center Rail. 5/8"	St. 1-21/32" T.R. 1-29/32" B.R. 4- 1/16" V.B. 7/16" Center Rail.. 7/8"	Prefit Face Measurements	Storm-Sash St. 1-29/32" T.R. 1-29/32" B.R. 4- 1/16" Center Rail 7/8"	Screens St. & T.R. 1-27/32" B.R. 3" Center Rail. 5/8"	St. 1-21/32" T.R. 1-29/32" B.R. 4- 1/16" V.B. 7/16" Center Rail.. 7/8"
Storm-Sash and Screens are Made 1/8" Narrower and 1" Longer Than Window Opening Sizes Shown Below				Storm-Sash and Screens are Made 1/8" Narrower and 1" Longer Than Window Opening Sizes Shown Below			
	Storm-Sash or Screens	Storm-Sash		Storm-Sash or Screens	Storm-Sash		
1-4 x 2- 6	12 x 12			2-8 x 6- 6	28 x 36	14 x 36	
2-10	14			6-10	38	38	
3- 2	16			7- 2	40	40	
3- 6	18			3-0 x 2-10	32 x 14		
3-10	20			3- 2	16	16 x 16	
4- 2	22			3- 6	18	18	
4- 6	24			3-10	20	20	
4-10	26			4- 2	22	22	
5- 2	28			4- 6	24	24	
5- 6	30			4-10	26	26	
5-10	32			5- 2	28	28	
1-8 x 3- 2	16 x 16			5- 6	30	30	
3- 6	18			5-10	32	32	
3-10	20			6- 2	34	34	
4- 2	22			6- 6	36	36	
4- 6	24			6-10	38	38	
4-10	26			7- 2	40	40	
5- 2	28			3-4 x 2-10	36 x 14		
5- 6	30			3- 2	16	18 x 16	
5-10	32			3- 6	18	18	
6- 2	34			3-10	20	20	
6- 6	36			4- 2	22	22	
2-0 x 2- 6	20 x 12			4- 6	24	24	
2-10	14			4-10	26	26	
3- 2	16	10 x 16		5- 2	28	28	
3- 6	18	18		5- 6	30	30	
3-10	20	20		5-10	32	32	
4- 2	22	22		6- 2	34	34	
4- 6	24	24		6- 6	36	36	
4-10	26	26		6-10	38	38	
5- 2	28	28		7- 2	40	40	
5- 6	30	30		3-8 x 3- 6	40 x 18		
5-10	32			3-10	20		
6- 2	34			4- 2	22		
6- 6	36			4- 6	24		
6-10	38			4-10	26	20 x 26	
7- 2	40			5- 2	28	28	
2-4 x 2- 6	24 x 12			5- 6	30	30	
2-10	14			5-10	32	32	
3- 2	16	12 x 16		6- 2	34		
3- 6	18	18		6- 6	36		
3-10	20	20		6-10	38		
4- 2	22	22		7- 2	40		
4- 6	24	24		4-0 x 3- 6	44 x 18		
4-10	26	26		3-10	20		
5- 2	28	28		4- 2	22		
5- 6	30	30		4- 6	24		
5-10	32	32		4-10	26		
6- 2	34	34		5- 2	28		
6- 6	36	36		5- 6	30		
6-10	38	38		5-10	32		
7- 2	40	40		6- 2	34		
2-8 x 2-10	28 x 14			6- 6	36		
3- 2	16	14 x 16		6-10	38		
3- 6	18	18		7- 2	40		
3-10	20	20		4-1 x 4- 6	48 x 24		
4- 2	22	22		4-10	26		
4- 6	24	24		5- 2	28		
4-10	26	26		5- 6	30		
5- 2	28	28		5-10	32		
5- 6	30	30		6- 2	34		
5-10	32	32		6- 6	36		
6- 2	34	34		6-10	38		
				7- 2	40		

CASEMENT SASH $1\frac{3}{8}$ " — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles.....1-29/32" Top Rail.....1-29/32" Bottom Rail.....3"				Vertical Bar.....3/16" Muntin.....3/16"		
							
Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	1 LT.	3 LT. HIGH	4 LT. HIGH	6 LT. 2 W.	8 LT. 2 W.	10 LT. 2 W.	12 LT. 3 W.
1-0 x 2- 6	8 x 25	8 x 8- 5/32	8 x 6-1/16				
2-10	29	9- 1/2	7-1/16				
3- 2	33	10-13/16	8-1/16				
3- 6	37	12- 5/32	9-1/16				
3-10	41	13- 1/2	10-1/16				
4- 2	45	14-13/16	11-1/16				
4- 6	49	16- 5/32	12-1/16				
4-10	53	17- 1/2	13-1/16				
5- 2	57	18-13/16	14-1/16				
5- 6	61	20- 5/32	15-1/16				
5-10	65	21- 1/2	16-1/16				
6- 2	69	22-13/16	17-1/16				
6- 6	73	24- 5/32	18-1/16				
1-4 x 2- 6	12 x 25	12 x 8- 5/32	12 x 6-1/16	5-7/8 x 8- 5/32	5-7/8 x 6-1/16		
2-10	29	9- 1/2	7-1/16	9- 1/2	7-1/16		
3- 2	33	10-13/16	8-1/16	10-13/16	8-1/16		
3- 6	37	12- 5/32	9-1/16	12- 5/32	9-1/16	5-7/8 x 7- 3/16	
3-10	41	13- 1/2	10-1/16	13- 1/2	10-1/16	8	
4- 2	45	14-13/16	11-1/16	14-13/16	11-1/16	8-25/32	
4- 6	49	16- 5/32	12-1/16	16- 5/32	12-1/16	9-19/32	
4-10	53	17- 1/2	13-1/16	17- 1/2	13-1/16	10-13/32	
5- 2	57	18-13/16	14-1/16	18-13/16	14-1/16	11- 3/16	
5- 6	61	20- 5/32	15-1/16	20- 5/32	15-1/16	12	
5-10	65	21- 1/2	16-1/16	21- 1/2	16-1/16	12-25/32	
6- 2	69	22-13/16	17-1/16	22-13/16	17-1/16	13-19/32	
6- 6	73	24- 5/32	18-1/16	24- 5/32	18-1/16	14-13/32	
1-8 x 2- 6	16 x 25	16 x 8- 5/32	16 x 6-1/16	7-7/8 x 8- 5/32	7-7/8 x 6-1/16		
2-10	29	9- 1/2	7-1/16	9- 1/2	7-1/16		
3- 2	33	10-13/16	8-1/16	10-13/16	8-1/16		
3- 6	37	12- 5/32	9-1/16	12- 5/32	9-1/16	7-7/8 x 7- 3/16	5- 5/32 x 9-1/16
3-10	41	13- 1/2	10-1/16	13- 1/2	10-1/16	8	10-1/16
4- 2	45	14-13/16	11-1/16	14-13/16	11-1/16	8-25/32	11-1/16
4- 6	49	16- 5/32	12-1/16	16- 5/32	12-1/16	9-19/32	12-1/16
4-10	53	17- 1/2	13-1/16	17- 1/2	13-1/16	10-13/32	13-1/16
5- 2	57	18-13/16	14-1/16	18-13/16	14-1/16	11- 3/16	14-1/16
5- 6	61	20- 5/32	15-1/16	20- 5/32	15-1/16	12	15-1/16
5-10	65	21- 1/2	16-1/16	21- 1/2	16-1/16	12-25/32	16-1/16
6- 2	69	22-13/16	17-1/16	22-13/16	17-1/16	13-19/32	17-1/16
6- 6	73	24- 5/32	18-1/16	24- 5/32	18-1/16	14-13/32	18-1/16
2-0 x 2- 6	20 x 25	20 x 8- 5/32	20 x 6-1/16	9-7/8 x 8- 5/32	9-7/8 x 6-1/16		
2-10	29	9- 1/2	7-1/16	9- 1/2	7-1/16		
3- 2	33	10-13/16	8-1/16	10-13/16	8-1/16		
3- 6	37	12- 5/32	9-1/16	12- 5/32	9-1/16	9-7/8 x 7- 3/16	6- 1/2 x 9-1/16
3-10	41	13- 1/2	10-1/16	13- 1/2	10-1/16	8	10-1/16
4- 2	45	14-13/16	11-1/16	14-13/16	11-1/16	8-25/32	11-1/16
4- 6	49	16- 5/32	12-1/16	16- 5/32	12-1/16	9-19/32	12-1/16
4-10	53	17- 1/2	13-1/16	17- 1/2	13-1/16	10-13/32	13-1/16
5- 2	57	18-13/16	14-1/16	18-13/16	14-1/16	11- 3/16	14-1/16
5- 6	61	20- 5/32	15-1/16	20- 5/32	15-1/16	12	15-1/16
5-10	65	21- 1/2	16-1/16	21- 1/2	16-1/16	12-25/32	16-1/16
6- 2	69	22-13/16	17-1/16	22-13/16	17-1/16	13-19/32	17-1/16
6- 6	73	24- 5/32	18-1/16	24- 5/32	18-1/16	14-13/32	18-1/16
2-4 x 2- 6	24 x 25	24 x 8- 5/32	24 x 6-1/16	11-7/8 x 8- 5/32	11-7/8 x 6-1/16		
2-10	29	9- 1/2	7-1/16	9- 1/2	7-1/16		
3- 2	33	10-13/16	8-1/16	10-13/16	8-1/16		
3- 6	37	12- 5/32	9-1/16	12- 5/32	9-1/16	11-7/8 x 7- 3/16	7-27/32 x 9-1/16
3-10	41	13- 1/2	10-1/16	13- 1/2	10-1/16	8	10-1/16
4- 2	45	14-13/16	11-1/16	14-13/16	11-1/16	8-25/32	11-1/16
4- 6	49	16- 5/32	12-1/16	16- 5/32	12-1/16	9-19/32	12-1/16
4-10	53	17- 1/2	13-1/16	17- 1/2	13-1/16	10-13/32	13-1/16
5- 2	57	18-13/16	14-1/16	18-13/16	14-1/16	11- 3/16	14-1/16
5- 6	61	20- 5/32	15-1/16	20- 5/32	15-1/16	12	15-1/16
5-10	65	21- 1/2	16-1/16	21- 1/2	16-1/16	12-25/32	16-1/16
6- 2	69	22-13/16	17-1/16	22-13/16	17-1/16	13-19/32	17-1/16
6- 6	73	24- 5/32	18-1/16	24- 5/32	18-1/16	14-13/32	18-1/16

NOTE:—Certain modifications in size may be necessary for modular coordination depending upon the type and design of frame used.

CELLAR SASH 1 $\frac{1}{8}$ " and 1 $\frac{3}{8}$ " — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	St.....1-21/32" T.R.....1-29/32" B.R.....1-29/32" V.B.....7/16"	Prefit Face Measurements	St.....1-21/32" T.R.....1-29/32" B.R.....1-29/32" V.B.....3/16"	Prefit Face Measurements	St.....1-29/32" T.R.....1-29/32" B.R.....1-29/32" V.B.....3/16"
Sash are Made 1/8" Narrower and 1/8" Shorter Than Opening Sizes Given Below	 2 LT.	Sash are Made 1/8" Narrower and 1/8" Shorter Than Opening Sizes Given Below	 3 LT.	Sash are Made 1/8" Narrower and 1/8" Shorter Than Opening Sizes Given Below	 4 LT.
1-8 x 1-4	8 x 12	2-0 x 1-0	6-21/32 x 8	3-4 x 1-4	8-13/16 x 12
2-0 x 1-4	10 x 12	2-4 x 1-4	8 x 12	1-8	16
1-8	16	1-8	16	3-8 x 1-4	9-13/16 x 12
2-0	20	2-8 x 1-0	9-11/32 x 8	1-8	16
2-4 x 1-4	12 x 12	1-4	12	2-0	20
1-8	16	1-8	16	4-4 x 1-4	11-13/16 x 12
2-0	20	2-0	20	1-8	16
2-8 x 1-8	14 x 16	3-0 x 1-4	10-21/32 x 12	2-0	20
2-0	20	1-8	16	2-4	24
		2-0	20		
		3-4 x 1-4	12 x 12		
		1-8	16		
		2-0	20		
		2-4	24		

■ Ponderosa Pine Windows a Quality Product

Nature has endowed Ponderosa Pine with many admirable qualities essential in window and sash construction. Evidence of its superiority may be obtained from millions of satisfied home owners whom Ponderosa Pine has served during the past fifty years.

Ponderosa Pine is light in color, varying from creamy white to straw. Compared with other commercial woods, it is distinctly a "white wood." It is soft textured with a typically straight, close, uniform grain. This accounts for the unexcelled smoothness and appearance of Ponderosa Pine and for the ease with which it is worked by hand and machine tools.

Ponderosa Pine has excellent finishing characteristics. It provides an excellent base for paints, stain, varnish and enamels. It "covers" better and smoother with fewer coats than most woods.

For high insulating value wood windows are without parallel. This outstanding characteristic, is more important today than ever before. Wood does not frost, sweat, corrode or scale. It requires less frequent painting and upkeep than most substitute materials. It is warm and friendly to the "touch." It is versatile, being readily adapted to meet existing conditions.

Wood windows stand on their performance record.

ONE LIGHT SASH 1³/₈" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit
Face
Measurements

St. 1-29/32"
T.R. 1-29/32"
B.R. 3"

Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	 1 LT.	Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	 1 LT.	Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	 1 LT.
1-4 x 1- 6	12 x 13	2- 6	25	6- 2	69
1-10	17	2-10	29	4-4 x 1-10	48 x 17
2- 2	21	3- 2	33	2- 2	21
2- 6	25	3- 6	37	2- 6	25
1-8 x 1-10	16 x 17	2-10	41	2-10	29
2- 2	21	4- 6	49	3- 2	33
2- 6	25	3-8 x 1-10	40 x 17	3- 6	37
2-0 x 1-10	20 x 17	2- 2	21	3-10	41
2- 2	21	2- 6	25	4- 2	45
2- 6	25	2-10	29	4- 6	49
2-10	29	3- 2	33	4-10	53
3- 2	33	3- 6	37	5- 2	57
3- 6	37	3-10	41	5- 6	61
2-4 x 1-10	24 x 17	4- 2	45	5-10	65
2- 2	21	4- 6	49	6- 2	69
2- 6	25	3-8 x 4-10	40 x 53	4-8 x 3-10	52 x 41
2-10	29	5- 2	57	4- 2	45
3- 2	33	5- 6	61	4- 6	49
3- 6	37	5-10	65	4-10	53
2-8 x 1-10	28 x 17	6- 2	69	5- 2	57
2- 2	21	4-0 x 1-10	44 x 17	5- 6	61
2- 6	25	2- 2	21	5-10	65
2-10	29	2- 6	25	6- 2	69
3- 2	33	2-10	29	5-0 x 3-10	56 x 41
3- 6	37	3- 2	33	4- 2	45
3-0 x 1-10	32 x 17	3- 6	37	4- 6	49
2- 2	21	3-10	41	4-10	53
2- 6	25	4- 2	45	5- 2	57
2-10	29	4- 6	49	5- 6	61
3- 2	33	4-10	53	5-10	65
3- 6	37	5- 2	57	6- 2	69
3-4 x 1-10	36 x 17	5- 6	61		
2- 2	21	5-10	65		

■ Abundance

Ponderosa Pine has probably the widest geographic range of any commercially important wood. An immense reserve is found in eleven Pacific Coast and Mountain states.

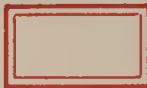
Scientific methods of logging and modern machinery and equipment are widely in use.

There is no cause for anxiety over the nation's future reserves of wood. This great multi-purpose material will continue to be available in ample supply for all requirements.

TRANSOMS 1 $\frac{3}{8}$ "—Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit
Face
Measurements

St.....1-29/32"
T.R.....1-29/32"
B.R.....1-29/32"

Sash are Made 1/8" Narrower and 1/8" Shorter Than Opening Sizes Given Below		Sash are Made 1/8" Narrower and 1/8" Shorter Than Opening Sizes Given Below		Sash are Made 1/8" Narrower and 1/8" Shorter Than Opening Sizes Given Below	
	1 LIGHT		1 LIGHT		1 LIGHT
2- 6 x 1- 2	26 x 10	3- 8 x 1- 2	40 x 10	2- 2	22
1- 6	14	1- 6	14	2- 6	26
1-10	18	1-10	18	6- 0 x 1- 6	68 x 14
2- 8 x 1- 2	28 x 10	2- 2	22	1-10	18
1- 6	14	2- 6	26	2- 2	22
1-10	18	4- 0 x 1- 2	44 x 10	2- 6	26
2-10 x 1- 2	30 x 10	1- 6	14	7- 0 x 1- 6	80 x 14
1- 6	14	1-10	18	1-10	18
1-10	18	2- 2	22	2- 2	22
3- 0 x 1- 2	32 x 10	2- 6	26	2- 6	26
1- 6	14	5- 0 x 1- 6	56 x 14	8- 0 x 1- 6	92 x 14
1-10	18	1-10	18	1-10	18
3- 4 x 1- 2	36 x 10			2- 2	22
1- 6	14			2- 6	26
1-10	18				

■ What Are STOCK Windows and Sash?

Stock woodwork products consist of those items of builders woodwork which are manufactured in standardized sizes and designs and which are customarily carried in stock for resale by sash and door jobbers and retail lumber dealers, or at least are readily available through the latter. Among these products are wood windows and sash.

Over a period of many years stock woodwork products have reached a high degree of development and today are readily accepted by the building public. They are sound in principles of design and construction. Manufactured on a quantity production basis, stock products are low in cost. A

wide range of designs and types are readily available from 22,000 retail lumber dealers located in rural as well as metropolitan areas.

Display models of many of these items are set up in distributors' show rooms thus enabling the buyer to see what he is getting.

Keeping stock woodwork products in harmony with architectural types and current architectural trends is a task to which the stock woodwork industry devotes constant and careful attention. Architects, while exercising freedom of architectural expression, will find that stock products are available to take care of their most exacting requirements in the vast majority of cases.

CUPBOARD SASH 1 1/8" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit Face Measurements	Stiles. 1-29/32"	Top Rail.... 1.29/32"	Bottom Rail..... 3"	Vertical Bar.... 3/16"	Muntin..... 3/16"		
Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below							
	1 LT.	2 LT. HIGH	3 LT. HIGH	4 LT. HIGH	4 LT.	6 LT. 2 W.	8 LT. 2 W.
1-4 x 3-0	12 x 31	12 x 15-3/8	12 x 10-5/32	12 x 7-9/16	5-7/8 x 15-3/8	5-7/8 x 10-5/32	5-7/8 x 7-9/16
3-6	37	18-3/8	12-5/32	9-1/16	18-3/8	12-5/32	9-1/16
4-0	43	21-3/8	14-5/32	10-9/16	21-3/8	14-5/32	10-9/16
4-6	49	24-3/8	16-5/32	12-1/16	24-3/8	16-5/32	12-1/16
5-0	55	27-3/8	18-5/32	13-9/16	27-3/8	18-5/32	13-9/16
5-6	61	30-3/8	20-5/32	15-1/16	30-3/8	20-5/32	15-1/16
6-0	67	33-3/8	22-5/32	16-9/16	33-3/8	22-5/32	16-9/16
1-8 x 3-0	16 x 31	16 x 15-3/8	16 x 10-5/32	16 x 7-9/16	7-7/8 x 15-3/8	7-7/8 x 10-5/32	7-7/8 x 7-9/16
3-6	37	18-3/8	12-5/32	9-1/16	18-3/8	12-5/32	9-1/16
4-0	43	21-3/8	14-5/32	10-9/16	21-3/8	14-5/32	10-9/16
4-6	49	24-3/8	16-5/32	12-1/16	24-3/8	16-5/32	12-1/16
5-0	55	27-3/8	18-5/32	13-9/16	27-3/8	18-5/32	13-9/16
5-6	61	30-3/8	20-5/32	15-1/16	30-3/8	20-5/32	15-1/16
6-0	67	33-3/8	22-5/32	16-9/16	33-3/8	22-5/32	16-9/16
2-0 x 3-0	20 x 31	20 x 15-3/8	20 x 10-5/32	20 x 7-9/16	9-7/8 x 15-3/8	9-7/8 x 10-5/32	9-7/8 x 7-9/16
3-6	37	18-3/8	12-5/32	9-1/16	18-3/8	12-5/32	9-1/16
4-0	43	21-3/8	14-5/32	10-9/16	21-3/8	14-5/32	10-9/16
4-6	49	24-3/8	16-5/32	12-1/16	24-3/8	16-5/32	12-1/16
5-0	55	27-3/8	18-5/32	13-9/16	27-3/8	18-5/32	13-9/16
5-6	61	30-3/8	20-5/32	15-1/16	30-3/8	20-5/32	15-1/16
6-0	67	33-3/8	22-5/32	16-9/16	33-3/8	22-5/32	16-9/16

■ *Science Gives Wood Longer Life*

Wood is among the oldest of all known building materials. Its durability is dramatically recorded in the thousands of homes, centuries old, that are still in use today. Long life has been one of its most important characteristics.

But today—through chemical treating—wood is more durable, more lasting, than ever before. This treatment, generally referred to as toxic-preservation, gives to wood windows and sash greater utility under the more exacting service requirements of modern construction. Wood treated with a toxic preservative is highly resistant to attack

by fungus which sometimes occurs when wood is exposed to excessive humidity or moisture.

Several years ago the National Door Manufacturers Association, in cooperation with a group of the country's leading wood technologists, set up minimum standards for treating woodwork products. A Seal of Approval was made available by license to all manufacturers and distributors conforming to these specifications. Wood windows and sash branded with the seal can be depended upon to give enduring service and satisfaction.

BARN OR UTILITY SASH $1\frac{1}{8}"$ and $1\frac{3}{8}"$ — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Prefit
Face
Measurements

Stiles..... $1\text{--}21\frac{1}{32}"$
Top Rail..... $1\text{--}21\frac{1}{32}"$
Bottom Rail..... $3"$
Vertical Bar..... $7\frac{1}{16}"$
Muntin..... $3\frac{1}{16}"$

Sash are Made $1\frac{1}{8}"$ Narrower and $1\frac{1}{32}"$ Shorter Than Opening Sizes Given Below		Sash are Made $1\frac{1}{8}"$ Narrower and $1\frac{1}{32}"$ Shorter Than Opening Sizes Given Below		Sash are Made $1\frac{1}{8}"$ Narrower and $1\frac{1}{32}"$ Shorter Than Opening Sizes Given Below	
	4 LT.		6 LT. 2 W.		8 LT. 2 W.
1-4 x 1-9	6 x 8	1-4 x 2- $5\frac{1}{4}$	6 x 8	1-4 x 3- $1\frac{1}{2}$	6 x 8
1-8 x 2-1	8 x 10	2-11 $\frac{1}{4}$	10	3-9 $\frac{1}{2}$	10
2-5	12	1-8 x 2-11 $\frac{1}{4}$	8 x 10	1-8 x 3-9 $\frac{1}{2}$	8 x 10
2-9	14	3- $5\frac{1}{4}$	12	4-5 $\frac{1}{2}$	12
3-1	16	3-11 $\frac{1}{4}$	14	5-1 $\frac{1}{2}$	14
2-0 x 2-1	10 x 10	4- $5\frac{1}{4}$	16	5-9 $\frac{1}{2}$	16
2-5	12	2-0 x 3- $5\frac{1}{4}$	10 x 12	2-0 x 4-5 $\frac{1}{2}$	10 x 12
2-9	14	3-11 $\frac{1}{4}$	14	5-1 $\frac{1}{2}$	14
2-11	15	4- $2\frac{1}{4}$	15	5-9 $\frac{1}{2}$	16
3-1	16	4- $5\frac{1}{4}$	16	6-5 $\frac{1}{2}$	18
3-5	18	4-11 $\frac{1}{4}$	18	7-1 $\frac{1}{2}$	20
3-9	20	2-4 x 3-11 $\frac{1}{4}$	12 x 14	2-4 x 4-5 $\frac{1}{2}$	12 x 12
2-4 x 2-5	12 x 12	4- $5\frac{1}{4}$	16	5-1 $\frac{1}{2}$	14
2-9	14	4-11 $\frac{1}{4}$	18	5-9 $\frac{1}{2}$	16
3-1	16			6-5 $\frac{1}{2}$	18
3-5	18			7-1 $\frac{1}{2}$	20
3-9	20			2-8 x 5-9 $\frac{1}{2}$	14 x 16
4-5	24			6-5 $\frac{1}{2}$	18
				7-1 $\frac{1}{2}$	20

Prefit
Face
Measurements

Stiles..... $1\text{--}21\frac{1}{32}"$
Top Rail..... $1\text{--}21\frac{1}{32}"$
Bottom Rail..... $3"$
Vertical Bar..... $3\frac{1}{16}"$
Muntin..... $3\frac{1}{16}"$

Sash are Made $1\frac{1}{8}"$ Narrower and $1\frac{1}{32}"$ Shorter Than Opening Sizes Given Below		Sash are Made $1\frac{1}{8}"$ Narrower and $1\frac{1}{32}"$ Shorter Than Opening Sizes Given Below		Sash are Made $1\frac{1}{8}"$ Narrower and $1\frac{1}{32}"$ Shorter Than Opening Sizes Given Below	
	6 LT. 3 W.		9 LT. 3 W.		12 LT. 3 W.
2-0 x 1-11	6-21/32 x 9	2-0 x 2- $8\frac{1}{4}$	6-21/32 x 9	2-0 x 3-5 $\frac{1}{2}$	6-21/32 x 9
2-1	10	2-4 x 2-11 $\frac{1}{4}$	8 x 10	2-4 x 3-9 $\frac{1}{2}$	8 x 10
2-4 x 2-1	8 x 10	3- $5\frac{1}{4}$	12	4-5 $\frac{1}{2}$	12
2-5	12	3-11 $\frac{1}{4}$	14	5-1 $\frac{1}{2}$	14
2-9	14	4- $5\frac{1}{4}$	16	5-9 $\frac{1}{2}$	16
3-1	16	2-8 x 3- $5\frac{1}{4}$	9-11/32 x 12	2-8 x 4-5 $\frac{1}{2}$	9-11/32 x 12
2-8 x 2-5	9-11/32 x 12	3- $8\frac{1}{4}$	13	4-9 $\frac{1}{2}$	13
2-7	13	3-11 $\frac{1}{4}$	14	5-1 $\frac{1}{2}$	14
2-9	14	4- $2\frac{1}{4}$	15	5-5 $\frac{1}{2}$	15
2-11	15	4- $5\frac{1}{4}$	16	5-9 $\frac{1}{2}$	16
3-1	16	4-11 $\frac{1}{4}$	18	6-5 $\frac{1}{2}$	18
3-0 x 2-1	10-21/32 x 10	3-0 x 2-11 $\frac{1}{4}$	10-21/32 x 10	3-0 x 3-9 $\frac{1}{2}$	10-21/32 x 10
2-5	12	3- $5\frac{1}{4}$	12	4-5 $\frac{1}{2}$	12
2-9	14	3-11 $\frac{1}{4}$	14	5-1 $\frac{1}{2}$	14
2-11	15	4- $2\frac{1}{4}$	15	5-5 $\frac{1}{2}$	15
3-1	16	4- $5\frac{1}{4}$	16	5-9 $\frac{1}{2}$	16
3-5	18	4-11 $\frac{1}{4}$	18	6-5 $\frac{1}{2}$	18
3-9	20	3-4 x 3- $5\frac{1}{4}$	12 x 12	3-4 x 4-5 $\frac{1}{2}$	12 x 12
3-4 x 2-5	12 x 12	3-11 $\frac{1}{4}$	14	5-1 $\frac{1}{2}$	14
2-9	14	4- $5\frac{1}{4}$	16	5-9 $\frac{1}{2}$	16
3-1	16	4-11 $\frac{1}{4}$	18	6-5 $\frac{1}{2}$	18
3-5	18				
3-9	20				
4-5	24				

BARN OR UTILITY SASH 1 1/8" and 1 3/8" — Showing Opening Sizes, Prefit Layouts and Glass Sizes

Continued from preceding page

Prefit Face Measurements		Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	8 LT. 4 W.	Stiles.....1-29/32" Top Rail.....1-21/32" Bottom Rail.....3" Vertical Bar.....3/16" Muntin.....3/16"		Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	12 LT. 4 W.
2-4 x 1- 9			5-13/16 x 8			2-4 x 2- 5 1/4	5-13/16 x 8
2- 1			10			2-8 x 2- 8 1/4	6-13/16 x 9
2-8 x 1-11			6-13/16 x 9			3-0 x 2-11 1/4	7-13/16 x 10
3-0 x 2- 1			7-13/16 x 10			3- 5 1/4	12
2- 5			12			3-11 1/4	14
2- 9			14			4- 5 1/4	16
3- 1			16			3-4 x 3- 5 1/4	8-13/16 x 12
3-4 x 2- 5			8-13/16 x 12			3- 8 1/4	13
2- 7			13			3-11 1/4	14
2- 9			14			4- 2 1/4	15
3- 1			16			4- 5 1/4	16
3-8 x 2- 5			9-13/16 x 12			4-11 1/4	18
2- 9			14			3-8 x 2-11 1/4	9-13/16 x 10
3- 1			16			3- 5 1/4	12
3- 5			18			3-11 1/4	14
3- 9			20			4- 2 1/4	15
4-4 x 2- 5			11-13/16 x 12			4- 5 1/4	16
2- 9			14			4-11 1/4	18
3- 1			16			4-4 x 3- 5 1/4	11-13/16 x 12
3- 5			18			3-11 1/4	14
3- 9			20			4- 5 1/4	16
4- 1			22			4-11 1/4	18
4- 5			24				
5-0 x 3- 1			13-13/16 x 16				
3- 5			18				
3- 9			20				
4- 1			22				
4- 5			24				

PORCH SASH 1 3/8"

SHOWING OPENING SIZES, PREFIT LAY-
OUTS AND GLASS SIZES

Prefit Face Measurements	Stiles.....1-21/32" T.R.....1-21/32" B.R.....3" V.B.....7/16" Muntin.....7/16"
Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	
	5 LT.
1-8 x 2-10	Bot. Lts. 8 x 20
4- 6	32
5- 2	36
2-0 x 4- 2	10 x 30
4- 6	32
5- 2	36
2-4 x 4- 2	12 x 30
4- 6	32
5- 2	36
2-8 x 4- 6	14 x 32
5- 2	36
3-0 x 4- 6	16 x 32
5- 2	36

HOT-BED SASH 1 3/8"

SHOWING OPENING SIZES, PREFIT LAY-
OUTS AND GLASS SIZES

Prefit Face Measurements	Stiles.....1-29/32" T.R.....1-29/32" B.R.....3" V.B.....Varies Hardwood Cross Bar
Sash are Made 1/8" Narrower and 1/32" Shorter Than Opening Sizes Given Below	
	HOT BED
3-0 x 4-0	3 Row 10"
6-0	3 Row 10"
6-0	4 Row 7"
3-4 x 6-0	4 Row 8"
4-0 x 6-0	5 Row 8"

■ **New**

Standard Opening Sizes

Based on 4" Module

The opening sizes established by this Standard were designed to meet the basic requirements of American Standards Association (ASA) Project A62—"Coordination of Dimensions of Building Materials and Equipment" sponsored by the American Institute of Architects and The Producers' Council.

The broad purpose of Project A62 is to secure maximum economies and simplification for the building industry through improved standardization. Since it is not practical to standardize the finished building, this broad purpose is applied to building products and methods by the coordination of sizes for component building parts.

The basis for this coordination is a 4" increment applied to the sizes and assembly of parts and to the layout of buildings. The increment or module, applying to both vertical and horizontal dimensions, serves as the spacing for a uniform three-dimensioned grid to which the building layout and details are referenced.

The sizes and dimensions for coordination, while based on a 4" module or increment, are not necessarily multiples of 4". Through the illustrations that follow it will be seen how the new double hung window standards meet the requirements for coordination by being built to the following measurements.

WIDTHS—Multiples of 4".

HEIGHTS—Multiples of 4", plus 2".

■ **INSTALLATION and CONSTRUCTION DETAILS**

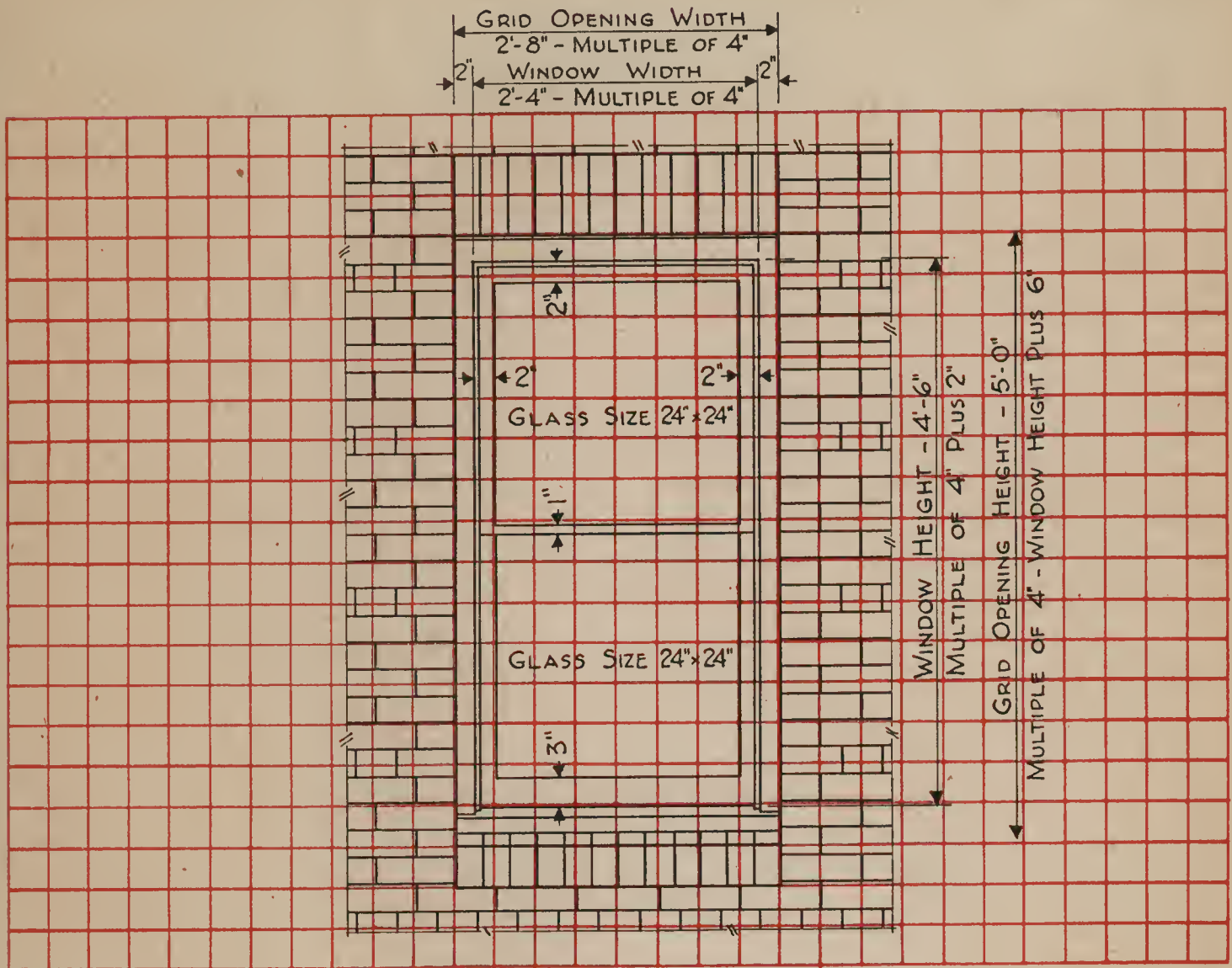
Attention is directed to Pages 24 to 26 showing typical head, jamb and sill conditions that develop through the use of several types of modular masonry.

Note particularly on page 26 that $1\frac{3}{16}$ " from the grid line to the seat of the masonry sill is a basic standard dimension for modular masonry with brick three courses to 8" in height. This permits the use of either lugged, slip or rowlock brick sill. When rowlock brick sills are used in solid

masonry or brick veneer construction, as shown on page 25, the same standard dimension applies to the top surface of the blocking.

Any window frame that meets these typical masonry conditions at head and jamb, and the basic requirement at the sill, can be substituted for the specific design shown which is intended merely to illustrate one method of meeting these requirements.

RELATION OF WINDOW TO GRID OPENING—BRICK WALL



As will be observed from the above illustration, the grid opening is a multiple of 4" both in width and in height. To meet the requirements for coordination it is essential that the window and its frame be confined within a certain number of 4" increments or modules as indicated by the red grid lines.

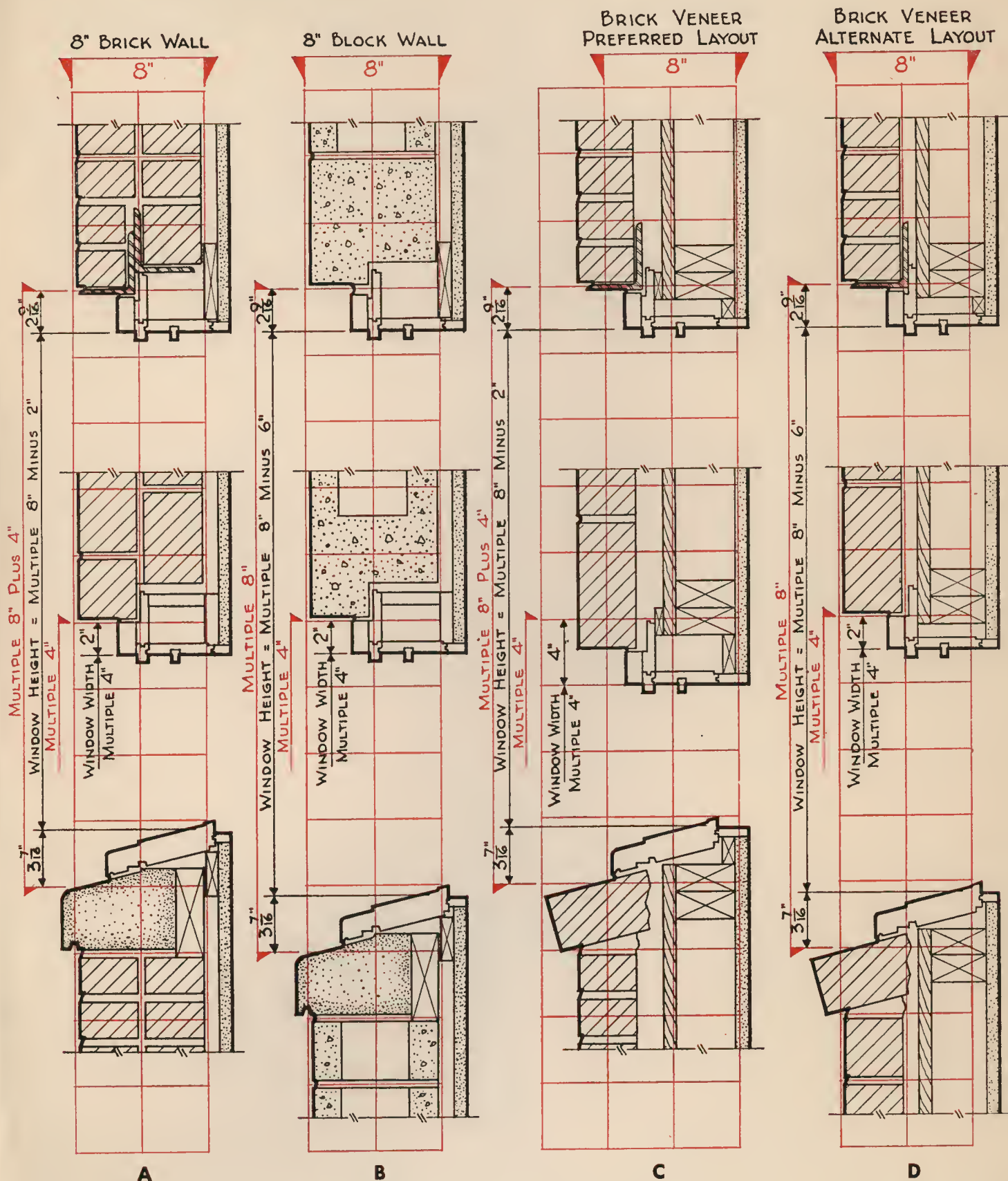
It will be noted that the standard window open-

ing in all cases is 4" less in width and 6" less in height than the grid opening. This relationship of the window size to the grid dimensions is clearly illustrated in the installation details, Pages 24 to 26.

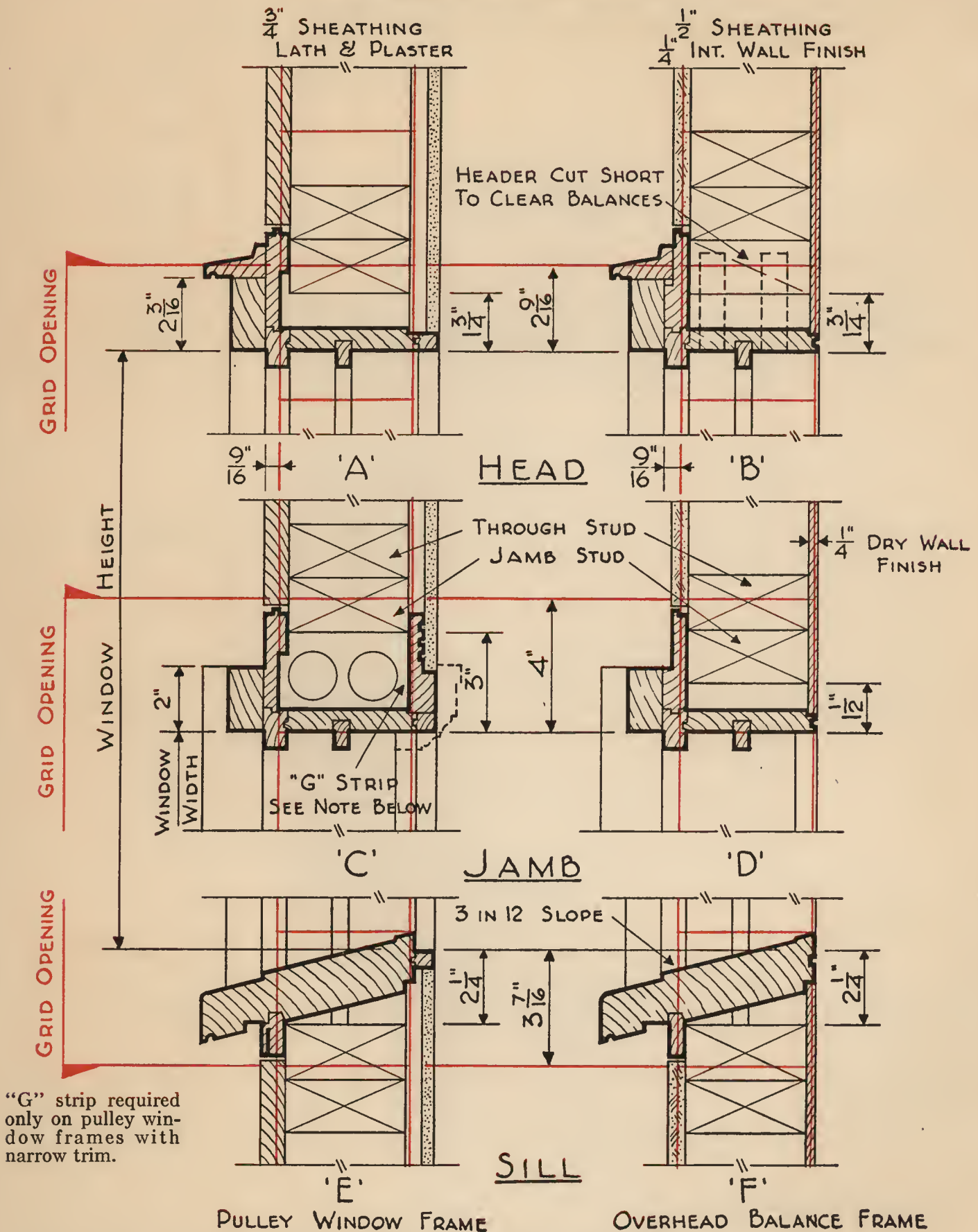
For multiple opening frames see Page 28 for mullion widths.

COORDINATION of WINDOW SIZES with Brick at 3 Courses to 8" and Concrete Block 8" High

Window Heights 2'6", 3'2", 3'10", 4'6", 5'2", 5'10", 6'6", 7'2" Apply to Details A and C
 Window Heights 2'10", 3'6", 4'2", 4'10", 5'6", 6'2", 6'10" Apply to Details B and D



INSTALLATION DETAILS—WOOD FRAME



"G" strip required only on pulley window frames with narrow trim.

Rough Opening Widths—6" greater than window widths for pulley window frames,
3" greater than window widths for patent balance frames.

Rough Opening Heights—4" greater than window heights.

INSTALLATION DETAILS—BRICK VENEER

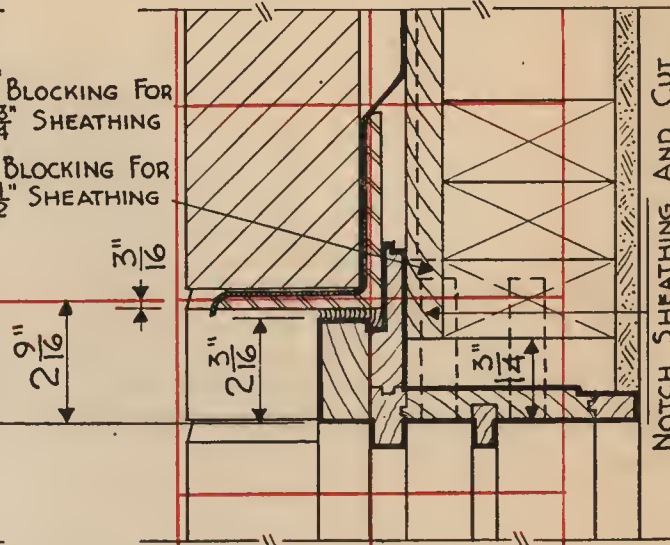
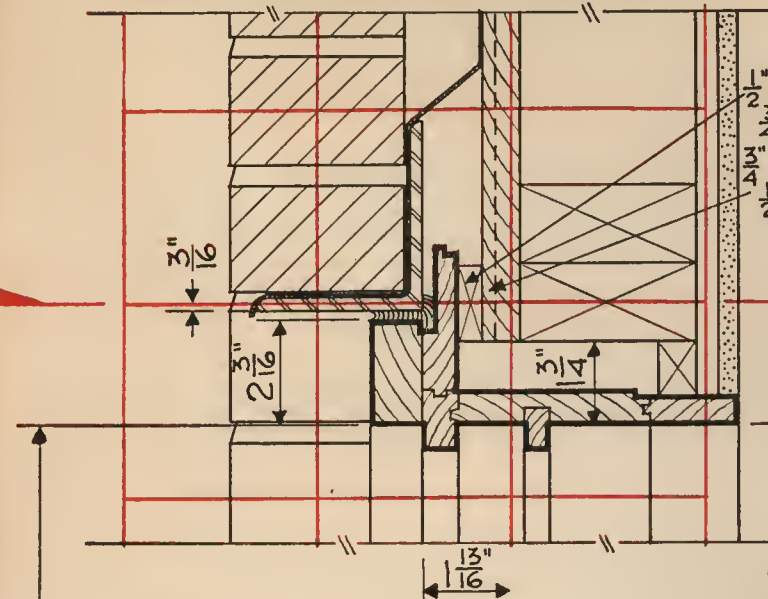
MODULAR COORDINATION IN BOTH MASONRY AND FRAME WALL

MODULAR COORDINATION IN MASONRY WALL ONLY

GRID OPENING

GRID OPENING

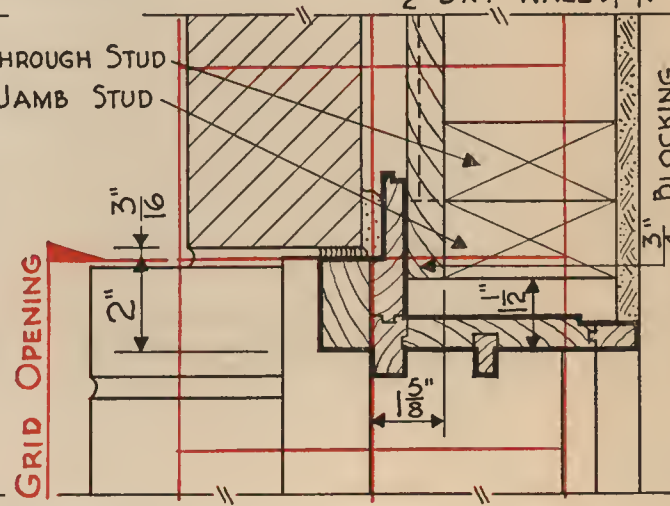
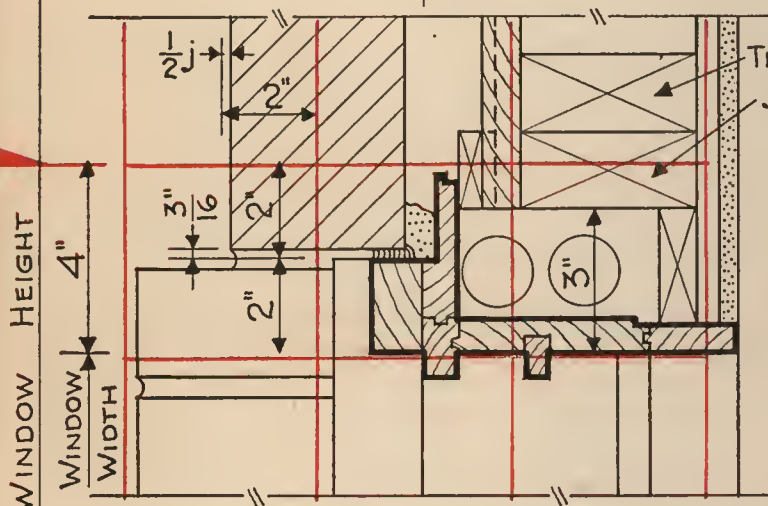
GRID OPENING



NOTCH SHEATHING AND CUT HEADER TO CLEAR BALANCES

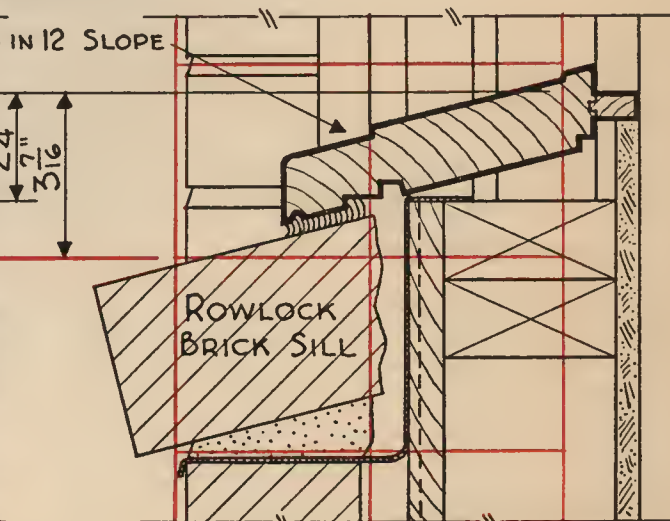
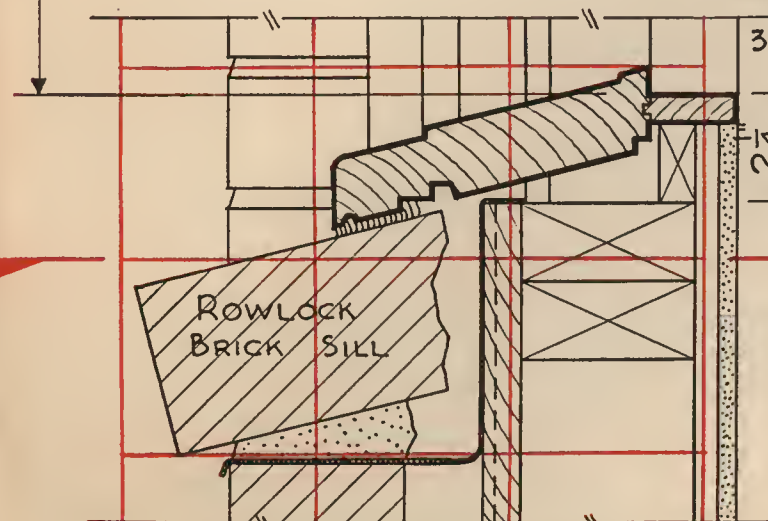
HEAD

1/2" DRY WALL



3" BLOCKING FOR 1/2" SHEATHING

JAMB



3 IN 12 SLOPE

ROWLOCK BRICK SILL

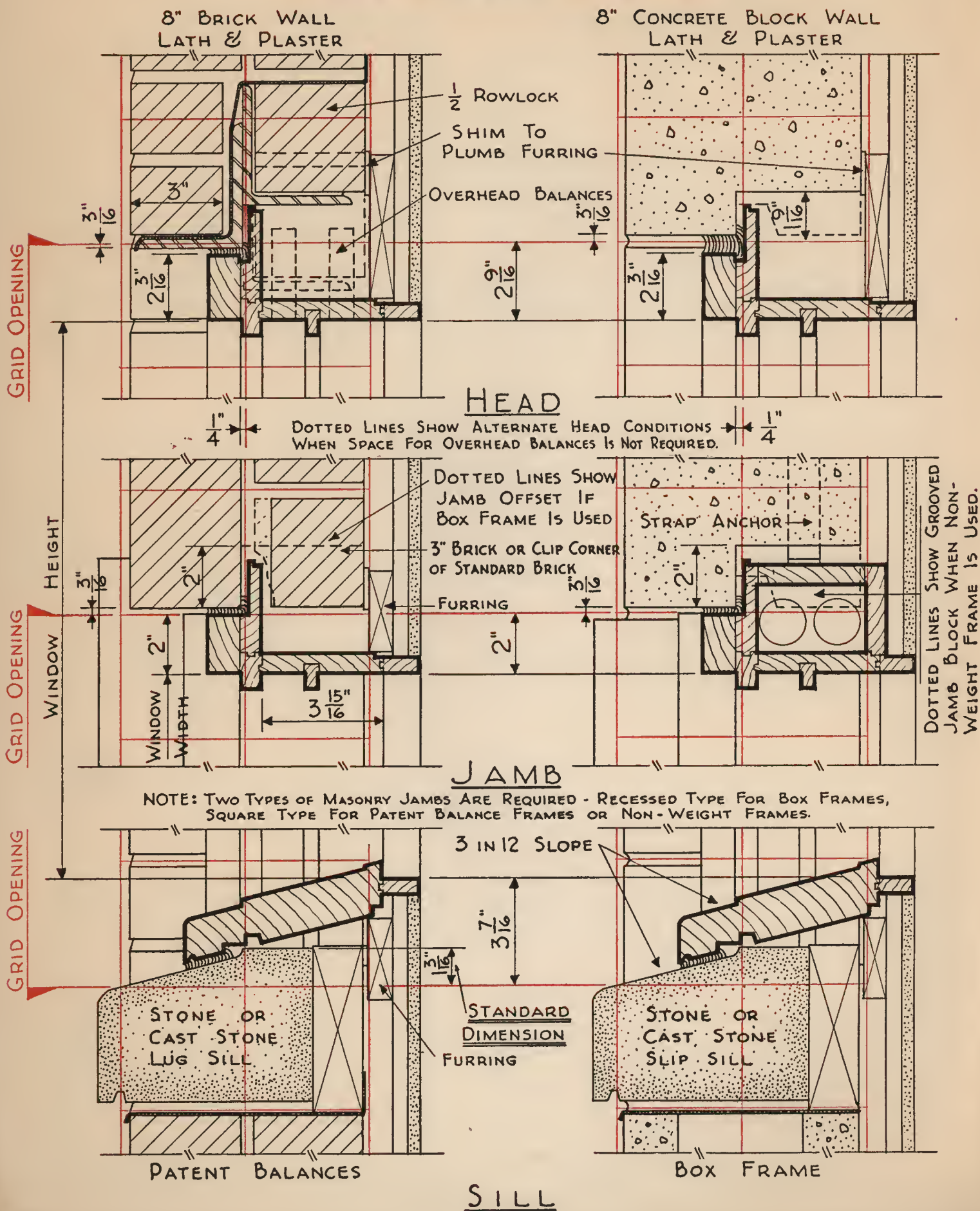
ROWLOCK BRICK SILL

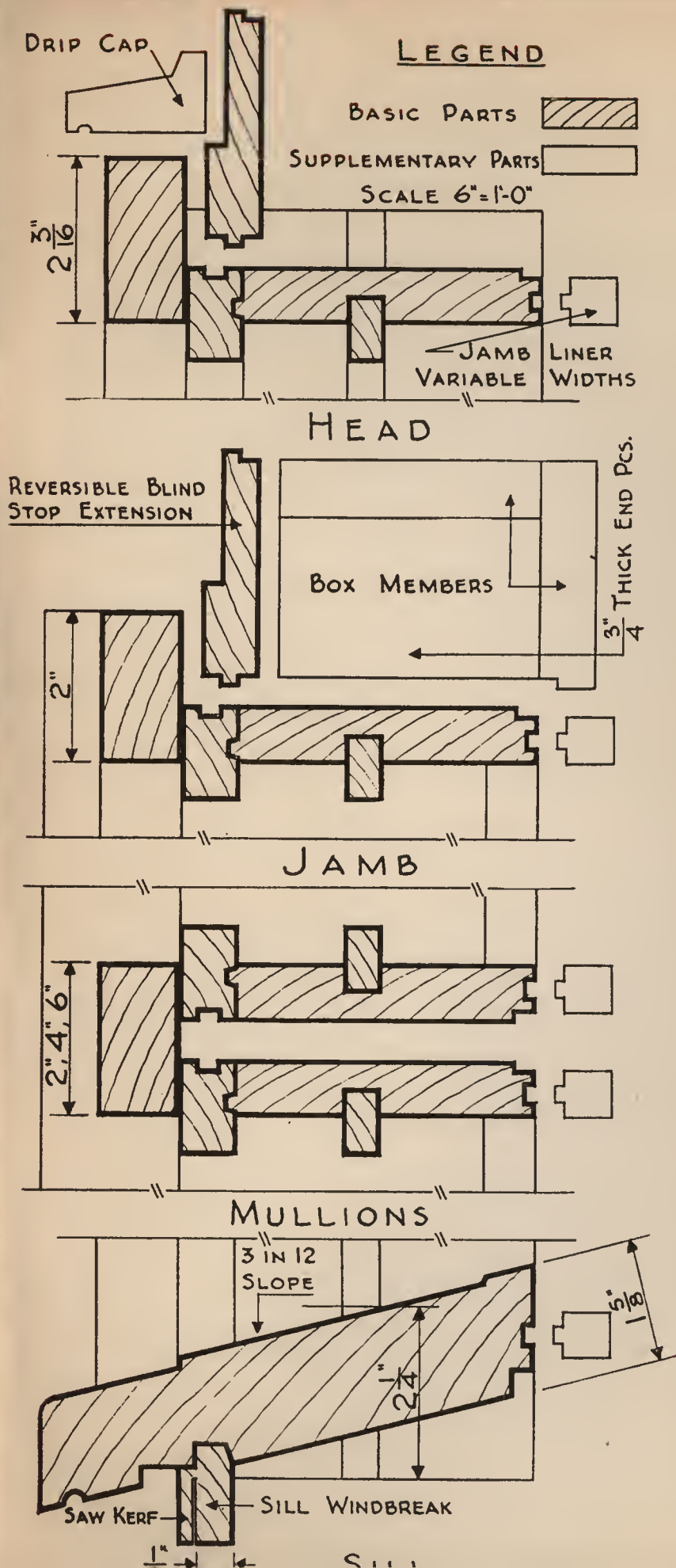
PULLEY WINDOW FRAME

PATENT BALANCE FRAME

SILL

INSTALLATION DETAILS—SOLID MASONRY





WINDOW FRAME

Here are shown one-half size details of the basic frame with supplementary parts used in the installation details for the various types of wall construction shown on the preceding pages. Obviously, any other frame that meets the requirements for dimensional coordination, as described on page 21, can be used.

Attention is invited to the following features of the frame shown on this page.

1. The basic frame with the addition of the supplementary parts when needed, meet the varying requirements of many types of wall construction—frame, brick veneer, or solid masonry.
2. It is designed to receive either weights and cords or patented spring balances.
3. The reversible blind stop extension permits frame to be used with either $\frac{1}{2}$ " or $\frac{3}{4}$ " outside wall sheathing.
4. The application of box members converts the basic frame to a regulation box frame.
5. Through the use of a jamb liner, the frame will meet the requirements of various types of interior wall finish such as $\frac{1}{4}$ ", $\frac{3}{8}$ " or $\frac{1}{2}$ " dry wall construction or standard lath and plaster.

For multiple window openings, mullions of several different widths—namely 2", 4" and 6"—are necessary depending on the method of counter-balancing the sash and other factors involved. See Page 28 for complete information on mullion widths.

The same sill is used in all cases except that the sill wind break is omitted on all solid masonry or brick veneer wall construction. This wind break is installed as shown when $\frac{3}{4}$ " outside sheathing is used in frame wall construction. The vertical saw kerf permits the member to be readily split in the field to proper thickness when $\frac{1}{2}$ " sheathing is used.

COORDINATION OF MULTIPLE WINDOW OPENINGS

The conventional weight and patented spring balance methods of counter balancing windows are shown in the installation details Pages 24 to 26. Both provide complete co-ordination for single window openings. From an appearance standpoint they are substantially the same. Exterior and interior finish may be identical.

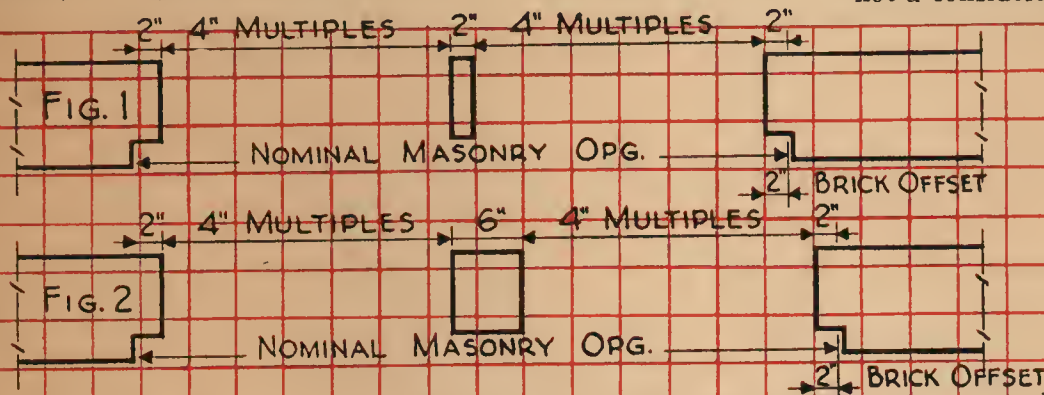
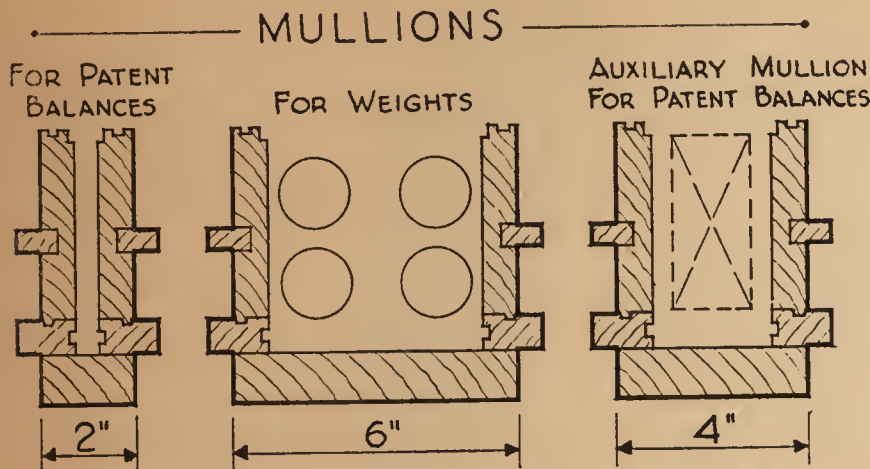
In the case of multiple openings for masonry walls, certain complications arise in meeting the modular program when an odd number of mullions is used. See Fig. 1 & Fig. 2 below.

If it were possible to make all mullions 4", complete coordination would result irrespective of the number of mullions involved. However, this is impossible because the 4" mullion is too narrow to accommodate conventional weights and much too wide to satisfy the proponents of narrow streamlined design.

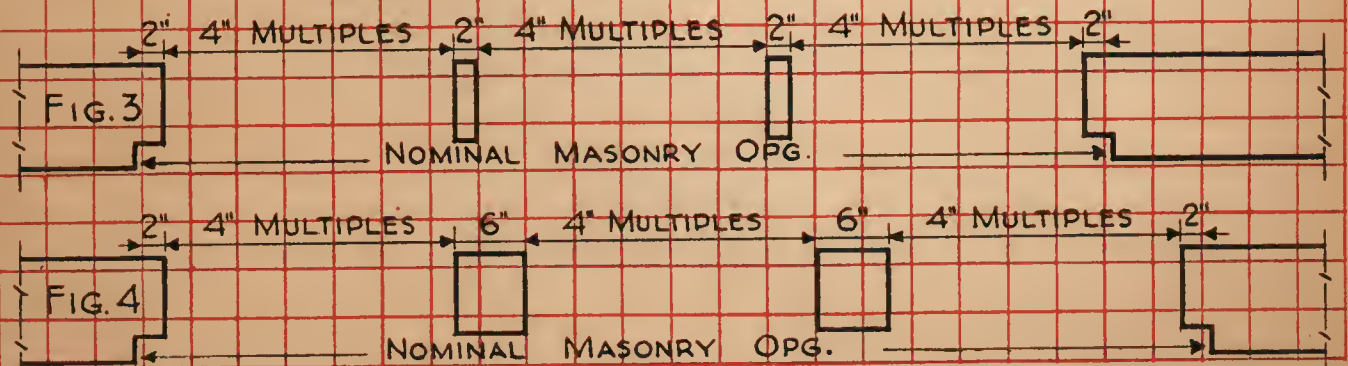
Thus in spite of slight complications the 2" and 6" mullions must necessarily be considered standard for all types of wall construction—frame, brick veneer, or solid masonry.

As shown below in Fig. 1 and Fig. 2 the nominal masonry openings, instead of being exact multiples of the 4" increment or module as prevails in Fig. 3 & Fig. 4, are multiples of 4" plus or minus 2". Naturally this requires a 2" masonry offset at one jamb. In brick walls this is produced by either cutting the brick at one jamb or providing three-quarter length brick.

4" AUXILIARY MULLION:—In cement block walls built with standard 16" nominal length units, the 2" jamb offset cannot be produced and accordingly the 4" mullion must be used, but only when an odd number of mullions is involved. Obviously it may also be used in any type masonry walls with patent balances when narrow streamlined mullions are not a consideration.



MULTIPLE OPENINGS WITH 1,3,5, ETC. MULLIONS



MULTIPLE OPENINGS WITH 2,4,6, ETC. MULLIONS

■ *Advantages of a National Standard for Wood Windows and Sash*

In addition to the economies that accompany any program of simplification, many other benefits will accrue to the entire building industry from the adoption of this national standard for wood windows and sash.

Under this modular standard all widths that are not exact multiples of four inches are eliminated. In addition, all windows, whether they are 2 light, 4 light, 8 light, 12 light, top divided, or any other type, are built to the same standard opening size instead of to a multiplicity of slightly different sizes that prevailed heretofore.

The advantages of this standardization will apply, not only to the windows themselves, but with equal force to the other component parts of the complete window opening. Window frames, storm sash, window screens, window trim, even window shades and venetian blinds can now be fabricated to the sizes established by this standard with full assurance of proper fit and coordination.

The elimination of the multiplicity of slightly different sizes of the many component parts involved will prove of inestimable value to the jobber in the distribution of these products. It will eliminate much confusion and misunderstanding. It will greatly reduce warehouse inventories of window items, increase turnover, and conserve warehouse space for a better assortment of other stock items. As a result, the availability of all stock woodwork products will be materially enhanced.

The retail lumber dealer too will be greatly benefited. In many localities it will now be perfectly practical for him to carry a conservative stock of at least the most popular items for immediate delivery to his customers.

Beyond this, the architect, contractor and builder, when using modular size window and sash openings, can do so with the assurance that they will fit properly in any building designed and erected to modular dimensions.

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